O.S.

International Management Digest®

NOVEMBER 1959
ONE DOLLAR (U.S.)

THE McGRAW-HILL PUBLICATION OF WORLD BUSINESS INFORMATION

Italy's fashion business succeeds through artistic and commercial flair. (Marketing)

turn the page for a new Service for International Management

Monsanto *Basic Source of Textile Chemicals*

Creative chemistry is a smart, new dress. It's the modern wardrobe that unpacks without a wrinkle. It's the fabric that drapes, pleats, folds—and takes to the wash tub. Creative chemistry is the valuable properties and infinite variety of modern fabrics. It's Resloom* that improves the washability of woolens and worsteds . . . finishing agents that glaze and emboss cottons and make them crease-resistant. It's Syton*, a chemical spinning aid that permits faster production of plumper, softer, more uniform yarns. It's Stymer* sizing agents that improve weaving efficiency of synthetic warps. These chemicals and a whole family of synthetic wetting agents and detergents essential to scouring and dyeing processes make Monsanto a leading world-wide source of textile chemicals for cottons, woolens and synthetics.

*Trade-marks registered by Monsanto Chemical Company

MONSANTO CHEMICAL COMPANY,
ST. LOUIS, MISSOURI, U. S. A.

Dependable service from Monsanto companies in London, Paris, Tokyo, Melbourne, Montreal, Bombay, Mexico, D. F., Buenos Aires and from sales representatives in all principal cities of the world.

Monsanto

Where Creative Chemistry Works Wonders for You

INTERNATIONAL
MANAGEMENT'S

American Letter

Dear Sir: November, 1959

THE POSSIBILITY OF A DOLLAR CRISIS--AND A RUN ON U.S. GOLD--IS FADING. The clearest signal came last month when the U.S. Treasury decided to pay 5% on new obligations. This means that Washington is committed to an all-out defense of the dollar. And you can expect that credit policy will remain restrictive, that the cost of borrowing will remain on a high plateau, that tight money in the U.S.A. will help push up interest rates in other major world money markets.

Public response to the 5% Treasury notes suggests that there is no shortage of funds for investment, and that inflation fears are lessening. So there is hope for more stability in the cost of money on into 1960. An explosive rise in rates and painful credit rationing can be avoided; indeed, there may be some slight easing of credit pressure after the first of the year. But any decline in interest rates could be only temporary. The monetary authorities here are determined to avoid a post-steel strike price boom--and determined to avoid loss of confidence in the dollar.

Confidence in the dollar has risen since the October World Bank and Fund meetings in Washington. Foreign bankers went home more convinced that the U.S. balance of payments deficit can be held to manageable proportions--by higher interest rates and a balanced budget, by rising U.S. exports, and--further in the future--by adjustments in U.S. overseas aid and spending (IMD--Oct.p1). So the U.S. gold outflow should dwindle, and there will be a lot less "inside" talk about dollar devaluation.

However basically strong a currency may be, psychological factors are critically important. So businessmen should expect a continuing campaign by world financial leaders to build up "dollar confidence". They are coming to realize that severe dollar troubles would immediately threaten other nations' currencies and general business health.

* * * *

THE EASY MONEY VS. HARD MONEY ARGUMENT WILL CONTINUE TO RAGE. But for the time at least, conservative money policies seem to be winning. President Eisenhower knows his policies will provoke bitter attack in the 1960 election year from those who believe that tight money harms business. But the policy will probably survive.

The influence of "hard money" men and their anti-inflation policies is rising, worldwide. Recent experience in Europe (West Germany and France are prime examples), and the austerity efforts in Chile, Colombia, Peru, Argentina--to name just a few--are cases in point. Provided world business keeps expanding as it is right now, the conservative approach to money and credit will gain ground at the expense of the businessmen and economists who insist that easy money is necessary to growth.

* * * *

HAZARDS FOR OUTSIDE BUSINESSMEN IN EUROPE'S COMMON MARKET: A confidential American research study has turned up surprising nationalist, protectionist attitudes in the six-nation EEC. For example: Public opinion surveys in France and in Germany found a large majority of those interviewed in favor of stringent trade, managerial, and financial restrictions on outside companies operating in their countries. (Next month, INTERNATIONAL MANAGEMENT can present results of this important study in detail.)

Each month the new American Letter reports the best thinking on trends that affect the international business community. The pages are perforated and printed on special easy-to-read paper.

American Letter

LATIN AMERICANS CONFIDENT COMMON MARKET WILL BE REALITY IN 1960's. Agreement on a free trade zone recently by seven South American countries does not guarantee that another genuine regional trading area is about to come into existence. But AMERICAN LETTER Editors who held on-the-spot interviews with architects of the scheme are convinced a Latin American Common Market is only a matter of time. Although Argentina, Bolivia, Brazil, Chile, Paraguay, Peru and Uruguay formally signed the free zone project during the last days of September, little real progress can be expected for at least another six months. In fact, the signatory nations already have suffered some serious setbacks.

Actually the Montevideo agreement calls for a free trade zone between the seven Republics within a 12-year period. Customs duties and other curbs on imports must be abandoned by then. However, Bolivia and Paraguay--the two countries recognized as "underdeveloped inland" nations--can apply for special concessions. South America's best financial and economic brains who attended the Conference also agreed to reduce external tariffs as well as internal levies. But the Latin republics already talk of reneging on such commitments. They want the General Agreement on Tariffs and Trade (G.A.T.T.) to first approve high external duties while they work toward internal reductions. Although G.A.T.T. and Washington approve Latin American integration, neither likes this reverse approach.

Supporters of the common market scheme are aware of the numerous obstacles they face. Nevertheless, they are determined to prove to the world that a Latin common market is just as necessary as Europe's, and far more urgent. Moreover, they deny charges that industrial integration between such nations as Argentina and Brazil is impossible because manufacturers within the two nations fear competition from each other.

In fact, the Argentine delegation will come to the all-important Santiago meeting next February armed with studies showing that the free trade area will bring about complementary lines of production advantageous to all members. It will also attempt to prove that labor costs and industrial technology are about on the same levels in the seven nations. And Argentina's United Nations economist, Raul Prebisch, who is one of the originators of the free trade area, has taken on the task of selling it to the other Latin republics. The so-called "travelling salesman" for the Latin American common market already has convinced many Mexicans it will not be a protectionist bloc. This is a change from a year ago when Mexico objected violently to a free trade area.

Chances are Venezuela, which sent observers to the Montevideo Conference along with Mexico, also will participate. This is because the free trade zone delegates are discussing future steel, coal and other basic commodity agreements similar to those coordinated into the European Common Market. Venezuela well realizes it could reap substantial benefits in the Latin American oil market. Once Mexico and Venezuela have joined, the theory is that the other Latin republics would want full membership.

Right now the number one hurdle is finding a tariff base for certain products, including both consumer and capital goods. This may take ten years, according to Prebisch. But odds now favor agreement on a few items in the coming February meeting.

SOME OUTSIDERS--AND INSIDERS--HAVE DOUBTS. Hard-headed businessmen in Latin America, Europe, and the U.S.A. express apprehension about a Latin trade area turning into a protectionist bloc. Washington is one capital that fears the Latin American common market scheme is partly motivated by a desire for rigid and high-cost protection of "infant industries." This would slow, rather than speed, the area's economic growth. To this, Prebisch and other supporters of the plan say they will fight for minimum protection only, and limit trade restrictions to a few items, mainly consumer goods.

A NEW OPPORTUNITY--AND CHALLENGE--FOR TEXTILES. Thanks to remarkable progress in American laboratories this year, some textile men now predict that non-woven fabrics can one day supply 10% to 25% of the American industry's total fiber consumption. The non-wovens (webs of fiber glued together, or entangled like felt or paper) are a "marriage" of textile and paper technologies. But they have been held back by technical problems and lack of investor interest. Now the outlook has changed. Reports leaking out of laboratories suggest that the problems are near solution.

Cheap non-woven apparel fabrics may not appear in mass textile markets for some time. But premium specialty products will. They all promise new business opportunities--as well as new competition for conventional natural and synthetic fibers. (For a further comment on world textiles, see page 13.)

* * * *

FUN IS BIG BUSINESS: THE GROWING RECREATION MARKET. Traders and investors should carefully study the changing leisure-time market, at home and abroad. More people enjoy shorter working hours and higher spending power--combined with easier credit facilities. That means new demands for everything from sporting goods and cameras to travel services and commercial amusements like bowling and dancing.

This year, U.S. spending on recreation will rise to over $100 per capita (some $17,500-million). And that does not include items such as the $2,500-million Americans are spending on foreign travel in 1959. Other examples: Sales of photo equipment (some of it imported) will reach $2,100-million by the time next month's Christmas shopping is done, compared to $950-million 10 years ago. Boating, fishing, and hunting equipment sales are rising phenomenally (another fertile field for importers). And the number of bowlers in commercial bowling alleys is rising at a 14% annual rate, and will total 35-million Americans by 1966.

The same trend appears elsewhere, especially in Europe. Note that two U.S. manufacturers of bowling equipment have begun pushing exports, trying to encourage investment in bowling facilities that will use their automatic equipment. (See page 21.)

* * * *

TROUBLES MULTIPLY FOR ATOMIC POWER INDUSTRY. Europe's heavy coal surplus, a world petroleum glut, and extremely high costs of nuclear power plants are dimming atomic energy's bright future--for a decade at least. Latest sign: British groups set up to build power plants are beginning to merge, admitting that the market is drying up. Elsewhere, West Europe's atomic development has slowed to a creep; in the U.S. and South Africa there is rising worry about uranium overproduction. And Russian leaders complain their scientists misjudged atomic power costs.

NEW PRODUCTS: An American concern offers a simplified, low-cost closed-circuit television system, for education and industry, for about $600, half the cost of competitive systems. For details: Argus Cameras Inc., Ann Arbor, Mich.

A prototype "television" camera that uses sound waves instead of light to examine the internal structure of materials is under development by the Northampton College of Advanced Technology, London. The British machine uses sound-sensitive quartz crystal that creates an "image" from ultrasonic sound waves.

A new push-button copier, first fully automatic machine yet produced, requires no treated paper, exposure or developing adjustments, and handles all colors, plus copying from books and magazines. Haloid Xerox, Rochester 3, New York. (For more New Products, see Product Digest on another page of this issue.)

U.S. RAW MATERIAL POLICIES FACE SIGNIFICANT CHANGES: The current rise in world economic activity is strengthening prices in commodity markets (see page 13). But despite this improvement, drastic revisions in raw material sales policies are needed. The big problem is world over-production, which overshadows today's improving commodity outlook. This could create a severe crisis if industrial countries encounter a future lull in business. Soviet trade activity is another compelling reason for new thinking. American ideas now are changing. For example, Washington is accepting fact that more intergovernment regulation of commodity markets may be desirable.

Meanwhile, raw material nations now are exerting strong pressure on U.S. and European governments for commodity agreements. For instance, Latin American republics are letting it be known that if Europeans want their support in the United Nations (on colonial issues, for example), concessions must be made. Note how persuasive this argument was in securing French and Portuguese participation in new coffee agreement. Here are some of the important trends in U.S. thinking that must be watched:

* World commodity pacts: Although U.S. Treasury will oppose them, greater U.S. participation in such accords, even if informally, is likely. The State Department believes the Tin Council is the model to follow. But all agree that what is really needed is production controls in each nation. The British particularly are holding out for this approach. (Witness their refusal to officially join the coffee pact until this condition is met.) At the same time, Washington will continue to encourage "Exporters Clubs" as a short-term solution. This may mean new working arrangements on many items (cotton, lead-zinc, and possibly more) should the need arise in the months to come.

* U.S. farm disposal: The current program will distribute $3,000-million worth of surplus farm goods overseas during the next two years. The Administration does not particularly like the plan, but no basic shifts are due soon. That is because Congress insists on the present arrangement, and 1960 is an election year. So the State Department will continue to wrestle with complaints from other agricultural countries.

Washington also is worried about the piling up of non-convertible local currencies received as payment for sales of agricultural surpluses. They are hard to spend. Moreover, they constitute a latent inflationary threat to the countries in question. Meanwhile, current barter of U.S. farm surpluses for strategic materials will continue to run at about $100-million a year--though Washington hopes to limit barter.

* Stockpile: Initial disposal of natural rubber from U.S. strategic stockpile is the pilot program for sales of other surpluses. Rubber will be disposed of over a nine-year period--that way Washington hopes to avoid sudden dumping which could harm world markets. But remember that natural rubber is not produced in the U.S.A., so disposal raises no domestic problems. The entire $8,000-million strategic stockpile is now under careful scrutiny to see where stocks can be reduced--as soon as possible. Changing military requirements and high stockpile costs are major reasons.

* U.S. import curbs: Political pressure for import curbs on some commodities is less than it was a year ago, thanks to better business. (Copper, mercury, tungsten, iron ore, and aluminum should get by without new import curbs.) But other American industries will fight harder than ever, especially for restrictions on textiles and certain non-ferrous minerals. Special accommodation for Venezuela within the oil quota system is possible but exact details and timing are still uncertain. Brazil now is asking Washington to impose coffee import quotas as a substitute for its not joining the coffee agreement. While this has backing of a few U.S. officials, it will not be accepted.

The Editors

Volume 14, Number 11 of INTERNATIONAL MANAGEMENT DIGEST, published monthly by McGraw-Hill International Corp., 330 West 42nd Street, New York 36, N. Y., U.S.A. Subscriptions solicited only from management executives in business and industry. Subscription price $5 (U.S.) for one year. Publication office: 99-129 North Broadway, Albany 1, New York. Second class postage paid at Albany, New York. INTERNATIONAL MANAGEMENT DIGEST and AMERICAN LETTER copyright© by McGraw-Hill International Corp. 1959.

Allis-Chalmers manufactures fork lift trucks with lifting capacities of 900 to 4500 kilograms in many types and models designed to meet the needs of every industry.
REDUCE MATERIAL HANDLING COSTS

with Allis-Chalmers Fork Lift Trucks

Allis-Chalmers fork lift trucks increase the speed and reduce the costs of loading, storing and transporting materials of many kinds in factories, warehouses, docks, terminals, etc.

They make possible more complete utilization of storage space in buildings, railroad cars, holds of ships, etc., because of their ability to maneuver easily in close quarters and stack materials up to 6 m high.

Allis-Chalmers fork lift trucks are noted for many outstanding advantages, but especially for their ability to operate for long periods without down-time or repair.

For example, in one instance, two Allis-Chalmers fork lift trucks moved 22 million kilograms of sugar in 15 months at a cost of only $1.92 for repairs. The cost of repairing the units they replaced had been running as high as $1,100 per year.

This kind of trouble-free performance is typical of Allis-Chalmers fork lift trucks. A multitude of such cases could be cited.

Heavy-duty Allis-Chalmers diesel or gasoline engines, designed for industrial use in fork lift trucks, provide durability, reserve power and maximum torque at normal operating speeds. They are capable of continuous operation, day after day, for thousands of hours without major overhaul.

No matter what your problem may be, the Allis-Chalmers material handling dealer in your area can offer suggestions and recommend the proper equipment to modernize your operations and reduce your costs.

ALLIS-CHALMERS INTERNATIONAL
Department MD1159, Milwaukee 1, U.S.A.

ALLIS-CHALMERS

BUILDERS OF MACHINERY SINCE 1847

NOVEMBER 1959
VOLUME 14 NUMBER 11

International Management Digest.

AMERICAN LETTER 1

WORLD BUSINESS

Spending Millions to Lure Billions. The UN fund is unearthing new opportunities for industry..15

Battling for a Place on the World Boulevards. A year of fierce competition looms, as Detroit launches its new "compact cars".....16

MEN AND COMPANIES

How to Keep Growing. With millions in bowling profits, a "growth company"—has problems....21

Appliance Makers Do Battle. Scramble to supply Japan with washers, TV, rice cookers.....21

TECHNOLOGY

Looking Ahead. News about coating mufflers, foamed aluminum, two new fibers, and more....25

New Prospects for Piping Solids. Facts on the economics of piping salt, sand, grain.....26

Man-Made Fibers Do Factory Jobs. They go into everything from filters to fire hose.....26

Jets Primed for New Jobs. Their fiery exhaust can drive pumps and compressors.....27

Power Plants Get a Helper. An automatic fuel cell moves out of the laboratory.....28

Oceans Offer Varied Riches.....29

New Ways to Fight Corrosion.....32

MARKETING

Italy Lures World's Fashion Buyers. Good business sense, plus artistry, pays off in fashion....38

Does Industrial Advertising Sell? Studies show that it at least paves the way.....40

FINANCE

Finance Finds a Way. Three brief examples....45

Three Years of IFC Investment. Its success in getting new capital into undeveloped areas....45

U. S. Stocks Shunned Abroad.....46

MANAGEMENT METHODS

Group Incentives: A Major Challenge to Management. An expert speaks out in a controversial area of modern industrial relations.....48

Junior Board of Directors is Senior Board's Alter Ego. Help from the men who run things.....50

A pioneer in World Buying. Problems of buying supplies for a big Mideast petroleum company..52

Automation Fund for Axed Workers.....52

Competitive Intelligence Is Part of Long Range Planning. A study on industrial espionage.....54

DEPARTMENTS

Editor's Page 8
Readers' Page 10
Business at a Glance.....13
Product Digest 35
Recommended Reading 59
Personal Business 60

PICTURE CREDITS: Ron Appelbe—cover, p38; Joan Sydlow—p17 (Volkswagen); Grant Compton—p21, top

E. E. WEYENETH, *Publisher*
PAUL R. MILLER, JR., *Editor*

Alfred E. Lewis, *Associate Editor*
Thomas B. Winston, *Associate Editor*

Irma Dunay, *Editorial Assistant*
Gilda M. Roberts, *Editorial Assistant*

Dexter Keezer, *Director of McGraw-Hill Economics Department*

John Wilhelm, *Director of News Bureaus*

NEW BUREAUS

B. E. Barnes, *Atlanta*
O. M. Marashian, *Beirut*
Morrie Helitzer, *Bonn*
John Pearson, *Caracus*
Donald MacDonald, *Detroit*
John Shinn, *London*
Kemp Anderson, *Los Angeles*
Alicja Grobtuch, *Melbourne*
Peter Weaver, *Mexico City*
Robert Gibson, *Moscow*
Robert E. Farrell, *Paris*
Janness Keene, *San. Francisco*
Sol Sanders, *Tokyo*
George B. Bryant, *Washington*
Correspondents in 45 other cities

R. H. Larsen, *Publications Manager*

Angelo Minerva, *Production Manager*

INTERNATIONAL MANAGEMENT DIGEST

INTERNATIONAL MANAGEMENT DIGEST (formerly McGraw-Hill DIGEST) Overseas and Latin American Editions is published monthly by McGraw-Hill International Corporation, James H. McGraw (1860-1948) Founder. Circulation in all countries of the world except the United States and Canada.

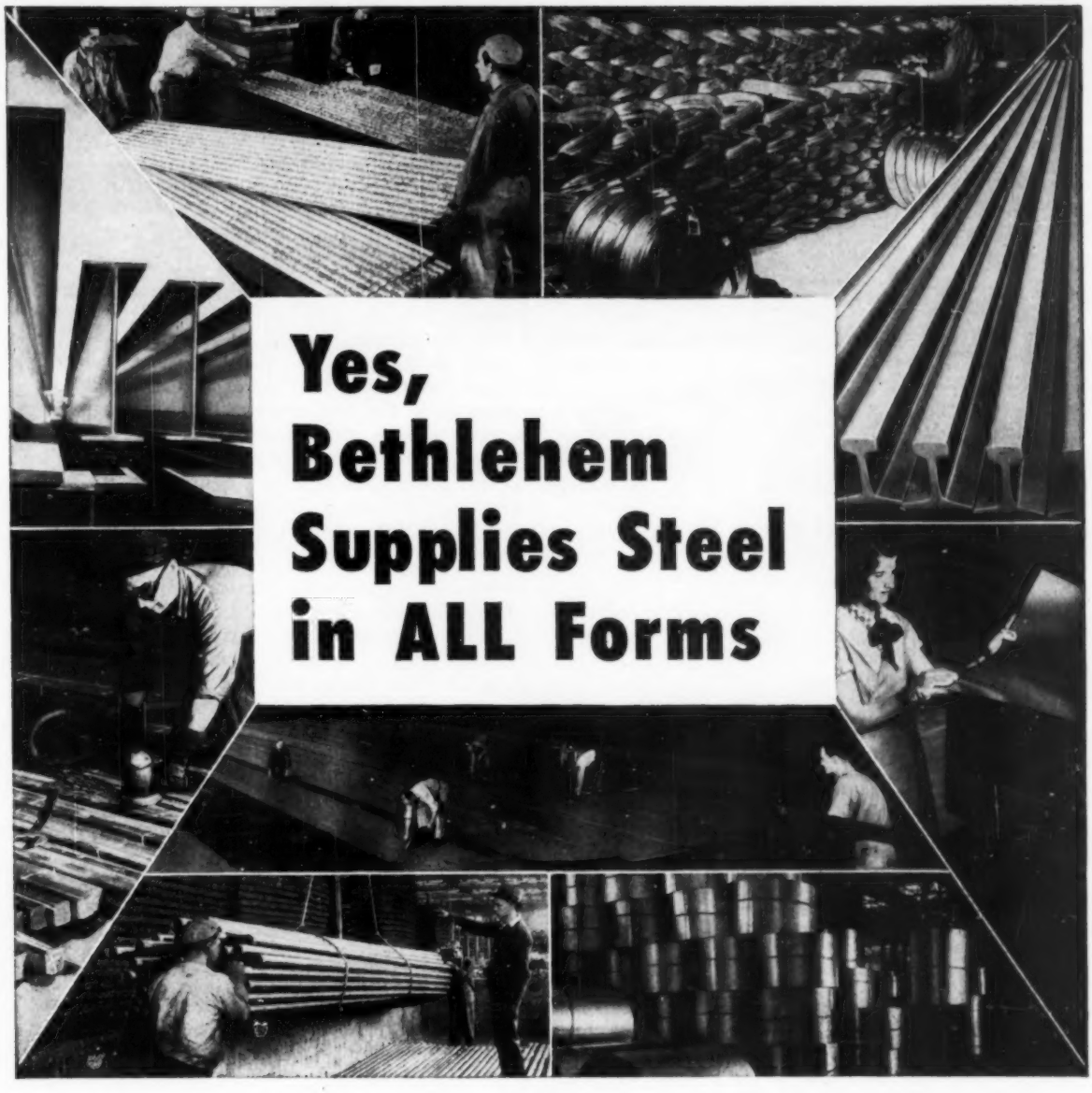
Executive, editorial, advertising and circulation office: 330 West 42nd Street, New York 36, N. Y., U. S. A. Donald C. McGraw, Chairman of the Board; Nelson L. Bond, President; Joseph A. Gerardi, Executive Vice President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary; John R. Callaham, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator.

Publication Office: 99-129 North Broadway, Albany 1, N. Y., U. S. A. See panel below for directions regarding subscriptions or change of address.

Subscriptions may be ordered through Fulfilment Manager (See below). **Subscriptions to INTERNATIONAL MANAGEMENT DIGEST are solicited only from management men in business and industry. Subscription orders must indicate position and company name.** Subscription rate $5.00 for 1 year, single copies $1.00 (U. S. currency). Second class mail privileges authorized at Albany, New York. Printed in U.S.A. ©Copyright 1959 by McGraw-Hill International Corporation. All rights reserved. Reproduction of items in full or in part without written permission prohibited in all parts of the world.

Send Subscription correspondence and change of address to Fulfilment Manager, INTERNATIONAL MANAGEMENT DIGEST, 330 West 42nd Street, New York 36, N. Y., U.S.A. For change of address please mail your complete new address as well as a clipping of the old envelope showing your old address.

Member Audit Bureau of Circulation



Yes, Bethlehem Supplies Steel in ALL Forms

Bethlehem doesn't limit its production of steel to a few general items. It is a world supplier of steel in all standard forms, including bars, alloy steels, tool steels, plates, structural shapes, sheets, strip, tin plate, wire products, rods, pipe, rails.

Bethlehem is a completely integrated steelmaking organization. We have our own ore mines, furnaces, treating ovens, rolling mills, laboratories, and all other equipment needed in the making of steel. Centralized control enables us to fill your wants more promptly and to furnish you with a wide variety of steel products in virtually every form.

No matter where you are, you're always close to a Bethlehem office or representative. It is the job of our offices and representatives everywhere to keep you supplied with the products we make, and to give you friendly service at all times. Bethlehem Steel Export Corporation, 25 Broadway, New York 4, U.S.A. Cables: "BETHLEHEM, NEWYORK."

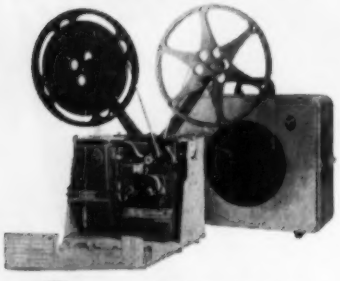
Bethlehem's great Sparrows Point plant in the Port of Baltimore, U.S.A., is the world's largest steel mill located on tidewater. Products for export can be loaded from this plant directly aboard ship.

BETHLEHEM STEEL

Represented in all principal cities of the world by offices and representatives of Bethlehem Steel Export Company

7053

TECHNICAL TRAINING IN YOUR FACTORY



VICTOR 16mm Sound Projectors

Take advantage of thousands of available technical films for training in your factory with a Victor Projector. These world famous projectors are easy to operate — assure brightest pictures, clearest sound. Sold and serviced by Victor Distributors the world over for showing 16mm sound films on such subjects as:

Chemistry ★ Safety ★ Machine Shop ★ Secretarial ★ Construction ★ Mining ★ Factory Supervision ★ Accounting ★ Electronics ★ Automation ★ Health ★ Industrial Management ★ Entertainment for Recreation During Rest Periods.

See our local agents for free booklet:
"HOW INDUSTRY PROFITS FROM THE USE OF SOUNDFILM"

ANGOLA: Soc. Com. Luso-Holand a Ltd., P.O. Box 178
BELGIAN CONGO: Radio Congo, Leopoldville B.P. 63
BRAZIL: Fotoptica Ltd. Sao Paulo, C.P. 2030
BURMA: Gyee Hwet & Co. P.O. Box 513, Rangoon
CEYLON: Siedles Cineradio, P.O. Box 340
COLUMBIA: Curacao Trading Co. Apt. Aereo 795, Bogola
CHILE: Petrowitsch, Errazuriz y Cia. Ltd. Santiago
CUBA: Vicente Vasquez, Almendares 205, Havana
DENMARK: Erik Nielsen, 12, Rosengaarden, Copenhagen
DOMINICAN REPUBLIC: Maximo R. Pou, P.O. Box 362, Ciudad Trujillo
GUATEMALA: Enrique Toriello e Hijo C.L.
INDIA: Electronics Ltd. Connaught Place, New Delhi
IRAN: Radio Jahan, Kaftarian Bldg. Avenue Shaha, Teheran
LEBANON: Georges Azar, B.R. 1143, Beyrouth
MEXICO: Servicio Para Artes Graficas, Apt. 7179, Mexico D.F.
MOZAMBIQUE: Spanos Sucrs, P.O. Box 434, Lourenco Marques
NICARAGUA: Equipos y Accesorios, Apt. 242, Managua
NEW ZEALAND: A. R. Harris Co. Ltd. 74-76 Manchester St. Christchurch
PERU: Distribuidora Filmica Peruana, S.A. Monzon 127, Lima
PORTUGAL: Roiz Ltd., C.P. 425, Lisbon
SAN SALVADOR: Dada-Dada Co. Apt. 274
SPAIN: Casa Tona, Gran Via 4, Bilbao
SOUTH AFRICA: African Consolidated Films Ltd. P.O. Box 4552, Johannesburg
THAILAND: Kamol Sukosol, P.O. Box 178, Bangkok
VENEZUELA: Filmica Electronica S.A. Ap. 2744, Caracas
PHILIPPINES: E. V. Mendoza & Co., 621-635 Ronquillo, Manila

Victor Animatograph Corporation
Plainville, Connecticut, U. S. A.

The Editors Report . . .

TEN MONTHS AGO, we said on this page that 1959 was going to be "a year when business should be able to get a lot accomplished," and remarked that the same applied to a business journal. Since then, INTERNATIONAL MANAGEMENT DIGEST has installed several new features, and prepared many special articles designed to be useful and timely aids to its subscribers. So much for past accomplishment. Now, it is time for the *piece de resistance.*

This month, the first four pages of the magazine inaugurate a new, expanded editorial service. We are incorporating the McGraw-Hill American Letter into INTERNATIONAL MANAGEMENT and, in doing so, we acquire the resources and staff for a more comprehensive job of reporting. These pages will be printed, at the last moment before each issue is mailed, on easy-to-read, perforated paper. We pledge that in these pages (as in our regular departments) we will present the best information that our staff, and all the resources of McGraw-Hill, can gather from industry, commercial centers, financial markets, and government in the U. S. A. and overseas.

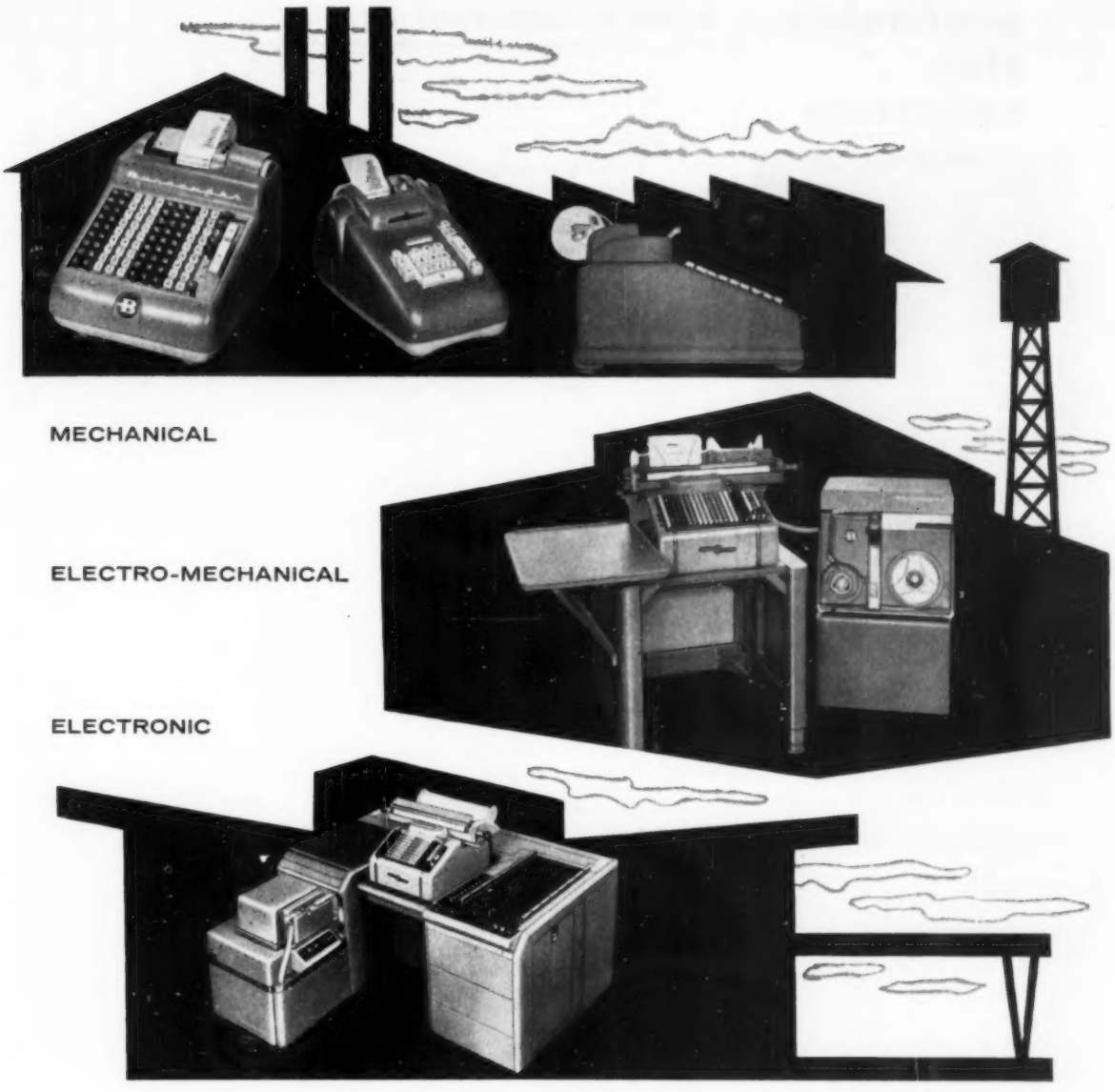
Those resources are considerable. McGraw-Hill publishes 39 business publications and other news services. It employs 615 full-time editors, economists, and correspondents in its New York headquarters and in 10 U. S. and eight foreign news bureaus. Last year, these men and women traveled nearly 5-million kilometers, made 85,000 editorial calls in pursuit of information. And they were assisted by another 600 part-time correspondents around the world.

The product of this publishing team is an astonishing flow of information. INTERNATIONAL MANAGEMENT's job is to sift it, and to present in each issue a quick tour of the business horizon: technology, marketing and management techniques, new products, business and financial trends—as seen from the U. S. A. but with an international point of view. The thoughtful reader (and that means most of our tens of thousands of subscribers) uses this journal as an indispensable help in "keeping up" in a world where the amount of business information is increasing far beyond the ability of any executive, however well-informed he may be, to cover it all.

How does the "thoughtful reader" use this journal? He seems to cultivate a reflective, "adaptive" mood as he reads. He knows he is reading for business, not pleasure. He considers why this or that trend or technique has appeared. Does it suggest an approach that he and his colleagues can use in their own affairs? Does it throw light on a pending business decision? Does it suggest a new business opportunity, at home or abroad?

Sometimes such reading provokes questions, comments, criticisms that can be directed to the editors. We welcome them—for they guide us in making the publication continually more useful to its readership. And right now, we will especially welcome comment on our new American Letter. You can be assured that your suggestions will receive prompt consideration.

The Editors



Whatever your business...whatever its size... in Burroughs full range of business machines there's a model to suit your needs

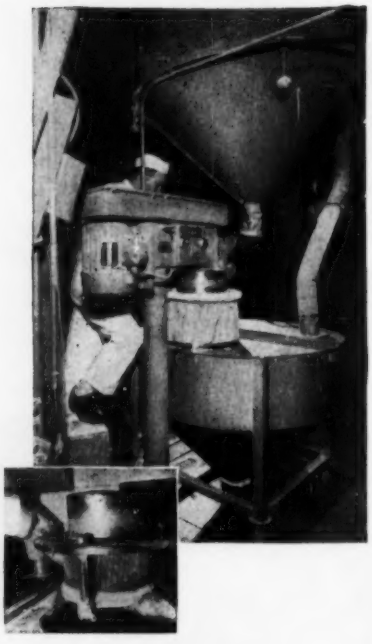
Whatever type of accounting job you have to do, there's a quality Burroughs business machine that can do it quickly, easily, and with substantial savings in operating cost. That's because Burroughs—with its world-wide research, manufacturing, sales and service organization—is an expert in all types of modern business equipment.

Burroughs, one of the early pioneers in developing practical electronic data processing for business, today offers a complete line of computers from the desk-size E-101 to the room-size Datatron 220. Burroughs also builds a complete line of electro-mechanical machines especially designed to combine the unique advantages of each type of system. And when it comes to mechanical-type equipment, again Burroughs long experience in quality-controlled manufacturing is your assurance of complete selection, value and satisfaction.

Call your **Burroughs** man

Your Burroughs man is a specialist in modern, cost-cutting accounting methods.
For his address, consult your local directory or write:
Burroughs Corporation, International Division, Detroit 32, Michigan, U.S.A.

profitable size reduction



with Stokes "TORNADO" MILLS

Two Stokes "Tornado" mills installed at Warner-Chilcott Division of Warner Lambert Pharmaceutical Co. are paying big dividends in the preparation of Gelusil, an antacid, absorbent tablet. For example:

- **"Tornado" mills consume less power (a 7½ hp motor does same work as unit with 15 hp motor)**
- **larger production capacity is obtained by durable, non-clogging 360° screens**
- **unique design insures excellent uniformity, minimizes "fines", actually doubles efficiency of drying ovens**

Why not find out how the Stokes "Tornado" mill can increase the efficiency of your operations. The Stokes Advisory Service will be glad to run tests on a sample of your material . . . at no obligation. Call or write Stokes . . . today.

International Division
F. J. STOKES CORPORATION
5500 Tabor Road, Philadelphia 20, Pa.

STOKES

● THE READERS' PAGE

Talk About Investment

Sir . . . I must take exception to your August article, "Where the Smart Investors Put their Profits." You say that in Brazil, "the cruzeiro has been depreciating at an annual rate of 35% to 40%." Now everybody knows that figure is 20% to 25%. And you mention that many of the "big money men" in Brazil say: "Buy dollars, and invest in the U. S. A." That is far from true: Industry is booming, and foreign investment has never been higher.

Inaccurate texts such as yours may actually do harm to a country wishing to attract foreign capital.

Aldo B. Franco
Rio de Janeiro
Brazil

• We regret this misunderstanding. Our article focussed exclusively on so-called "smart money men," whom we defined as wealthy individuals with excess funds which they are anxious to put to work in a short-term, speculative way. We were not talking about long-range industrial investment by business organizations, such as Reader Franco's. Certainly Brazil's great industrial progress stands as proof that serious, long-term capital is at work in Brazil. At the same time, however, the Brazilian foreign exchange situation could be eased considerably if some of the speculative capital were to come home.

True, 20% to 25% is the probable rate of currency depreciation over five years up to 1959. But our article was talking only about 1959, and this year to date the rate appears much higher. Figures such as a 32% cost of living rise through July, and the huge increase in money supply in August—together with other indicators—suggest a rate of 35%, possibly more.

EDITOR

Sir . . . Your fine article on "The Challenge to the Dollar" [August] was stimulating, but it contained a serious fallacy. You say that the problems of the U. S. balance of payments may lie in "rising private investment and government spending abroad."

It is true that U. S. government spending abroad is a major drain on dollars and that private portfolio investment has risen sharply. But new direct private investment was only $1,090-million in 1958 (compared to $1,860-million and $2,060-million in 1956 and 1957). Even more important, income received from direct investment abroad has been considerably greater in all these years than new investment. Indeed, during 1958 profit remittances and royalties were more than double new direct investment.

The fallacy suggests that U. S. manufacturing investment abroad weakens the dollar. In reality, it does just the opposite.

William Persen
"Business International"
New York

Plaudits from Brazil . . .

Sir . . . We are very pleased to inform you that our Centro has been receiving your publication INTERNATIONAL MANAGEMENT DIGEST regularly, and that, for its interest and value, it is occupying a distinctive place in our library.

Jose M. C. de Araujo
President
Centro Dos Estudantes Universitarios de Engenharia
Porto Alegre, Brazil

. . . New Zealand

Sir . . . I should like to take this opportunity of saying how much I look forward to receiving copies of INTERNATIONAL MANAGEMENT DIGEST. They contain a diversity of subjects, and are read by many persons in our business. The manner in which they are presented makes them easy to understand and I am certain that they are of great value to many industries throughout the world.

H. Meltzer
Asst. Manager
E. L. Riley Ltd.
Auckland, N. Z.

. . . and New York

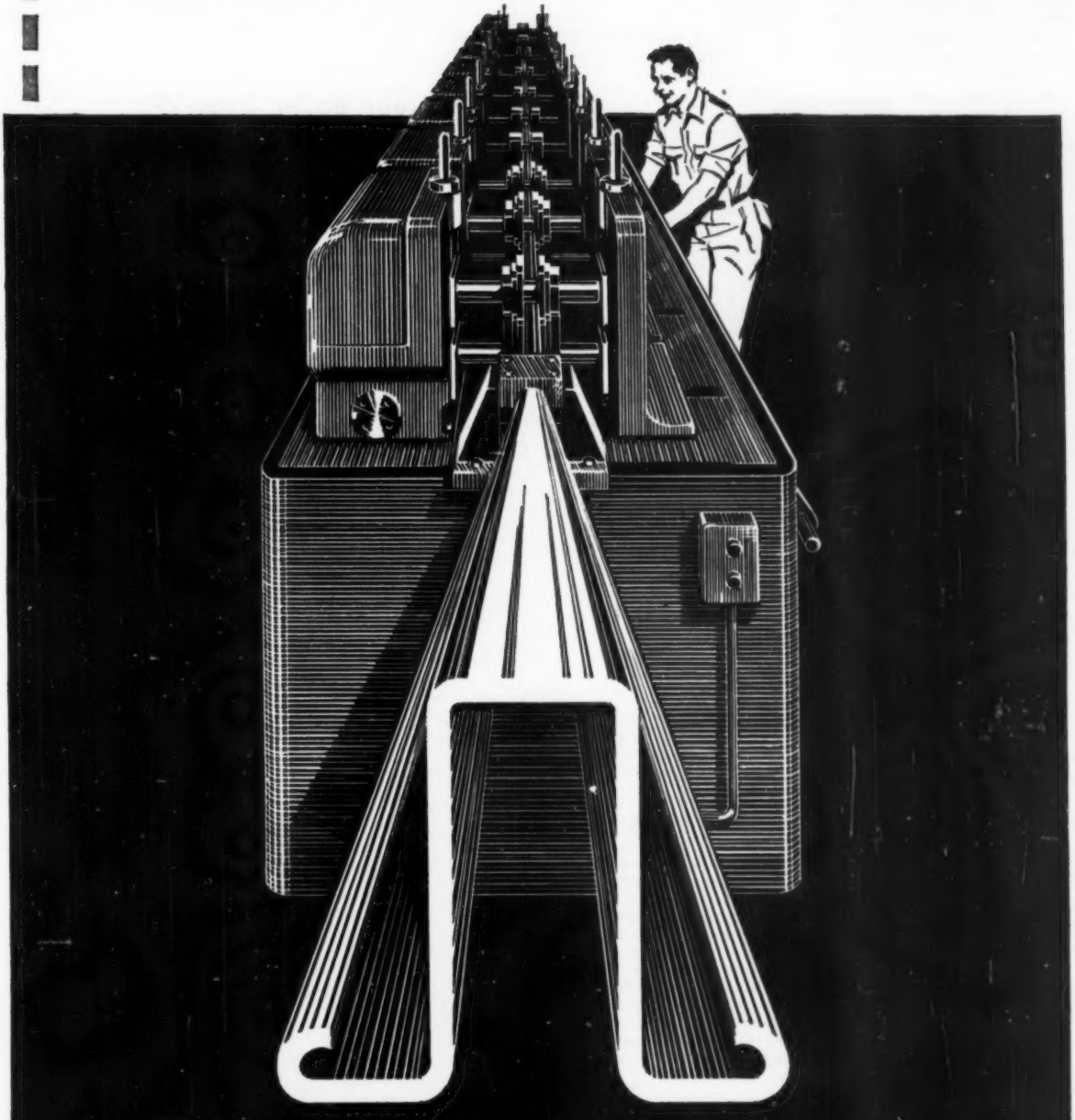
Sir . . . We of the Foreign Credit Interchange Bureau want to compliment you on an outstanding piece of reporting—certainly your article on "Exchanging Credit Information" (Oct., p45) represents a valuable contribution to the better understanding of the importance and impact of commercial credit on business everywhere.

Philip J. Gray
Director
F.C.I.B.
New York

YODER

Roll Forming Equipment—Product dependability—integrity of manufacture—engineering for specific production needs have all contributed to establish Yoder equipment as the industry standard of excellence. Since 1909 Yoder-built machinery, including Pipe and Tube Mills, Roll Forming Equipment and Rotary Slitters, have earned world-wide customer satisfaction and recognition. Profit from Yoder's years of engineering and service experience. Send today for the illustrated Yoder Roll Forming Equipment Book.

THE YODER COMPANY • 5517 Walworth Avenue • Cleveland 2, Ohio



ENGINEERING
YODER
MANUFACTURING

COLD ROLL FORMING MACHINES

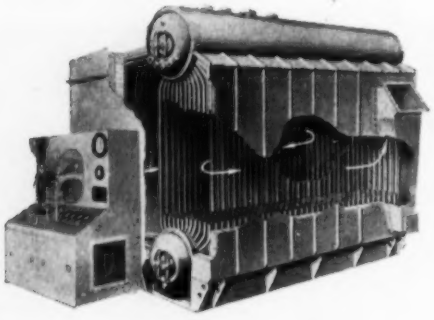
PIPE AND TUBE MILLS (ferrous or non-ferrous)
ROTARY SLITTING LINES

One of these C-E standard boilers is...

DESIGNED FOR YOUR PLANT

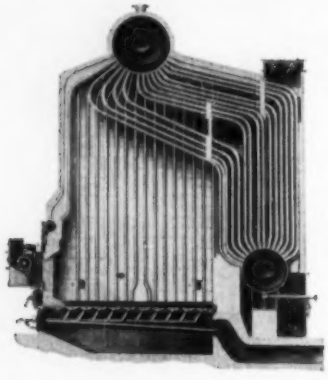
If your steam needs range between 4,000 and 140,000 pounds per hour, one of these versatile C-E Boilers will give you economical, standout performance. For while they are standard in design (which means lower first cost and proven performance), they're still *flexible* enough to be easily adapted to meet almost any standard requirement.

Chances are that one of the C-E standard boilers is the answer to your steam needs. But whatever they may be, C-E can fill them. For C-E Boilers are made in sizes and types for *any* capacity – for *any* pressure – *any* fuel or method of firing.



C-E Package Boiler, Type VP

This completely shop-assembled boiler is available in fourteen sizes from 4,000 to 90,000 pounds of steam per hour . . . for operating pressures up to 700 psi . . . temperatures to 750 F . . . for pressure firing of liquid or gaseous fuels. The VP Boiler has more water-cooled area per cubic foot of furnace volume than any other boiler of its size and type. The large lower drum – 30-inch diameter – permits a simple, symmetrical tube arrangement . . . greater water storage capacity . . . easy access for washing down or inspection. A centrifugal fan, which operates at low speed and is exceptionally quiet in operation, is standard equipment. The simple baffle arrangement results in low draft loss . . . simple soot blowing . . . no dead pockets . . . high heat absorption. The VP is enclosed in a reinforced gas-tight, welded steel casing, and shipped completely assembled with firing equipment, fittings and forced draft fan. For foundation, it needs only a simple concrete slab.

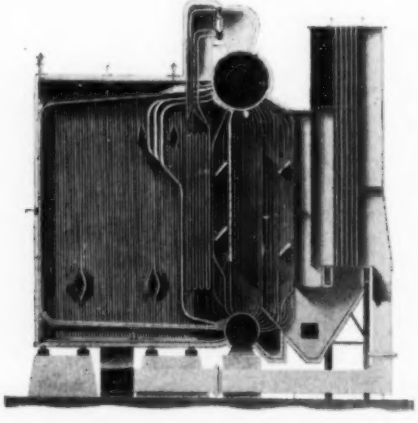


C-E Vertical Unit Boiler, Type VU-10

The VU-10 is available in nine sizes from 10,000 to 60,000 pounds of steam per hour . . . for operating pressures up to 475 psi . . . superheat to 150 F in 20,000-60,000 lb range . . . for solid, liquid or gaseous fuels. This boiler is a completely standardized design adaptable to many conditions. It is bottom-supported and needs no outside supporting steel. It operates efficiently over a wide range of output and is easy to operate and maintain. All parts are easily accessible for inspection. The VU-10 is a complete unit – boiler, furnace, setting, fuel-burning equipment, controls, forced draft, heat-recovery equipment (if desired). Regardless of fuel, the same general cross-sectional arrangement of drums, convection bank and furnace wall cooling is used. Uniform design through each transverse section assures even water level in the drum and uniform expansion.

C-E Vertical Unit Boiler, Type VU-55

The VU-55 Boiler is available in five sizes ranging from 70,000 to 140,000 pounds of steam per hour. It is designed for pressures from 250 to 750 psi for all sizes and for up to 300 degrees F of superheat. Heat-recovery equipment may be added if desired. VU-55 Boilers are designed for the pressure firing of oil or gaseous fuel and require no induced draft fan. They are equipped with tangential burners and tangent furnace tubes to assure a level of performance which compares favorably with modern utility practice. Equipped with a large (60-in) steam drum, the VU-55 has generous water capacity and steam reservoir space. C-E drum internals assure high quality steam at all ratings. The absence of outside downcomer tubes and ducts makes possible the attractive streamlined exterior of the VU-55.



associates, licensees and representatives throughout the free world

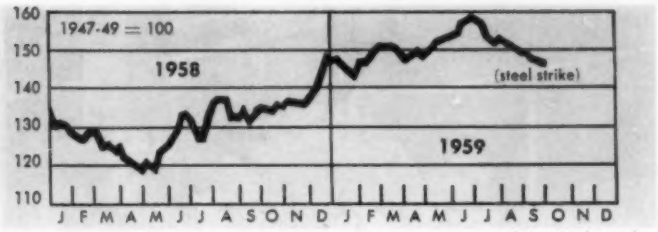
COMBUSTION ENGINEERING

Combustion Engineering Building, 200 Madison Avenue, New York 16, N. Y.

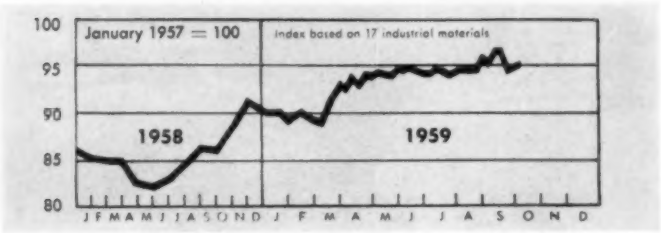
C-240

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS, FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE

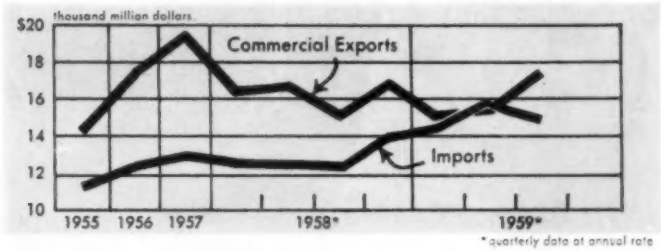
Business at a Glance



Business Week magazine



Purchasing Week magazine



*quarterly data at annual rate

U.S. Business Trend

The *Business Week* index shows the impact of the steel strike, which was curtailing output in many lines by early October. Though the strike is halted, there will not be enough steel for a while. Still, expect a sharp upward turn in the index this month and next as U.S. production, jobs, inventories, spending build up.

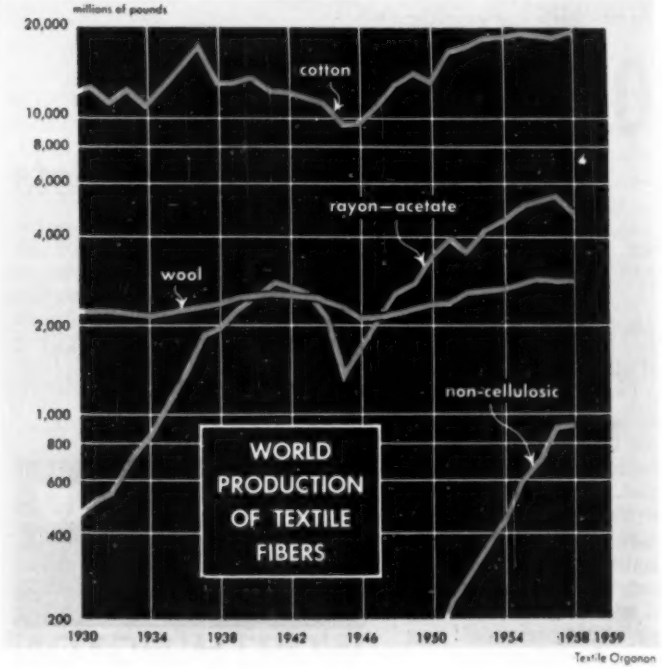
U.S. Commodity Trend

Despite a weakening late in September (due partly to rubber and hides), the *Purchasing Week* index of industrial raw materials prices is expected to move up soon. U.S. and world demand is rising, and inventories in some lines are low. But no price boom is in prospect: there's too much competition, too large supplies.

U.S. Foreign Trade

The third quarter of the year brought the news that improving business overseas has ended the steady fall in U.S. exports—but not before the export surplus had momentarily disappeared in the second quarter (based on seasonally adjusted figures). Though imports are up, the U.S. looks forward to another export surplus in 1959.

• CHART OF THE MONTH



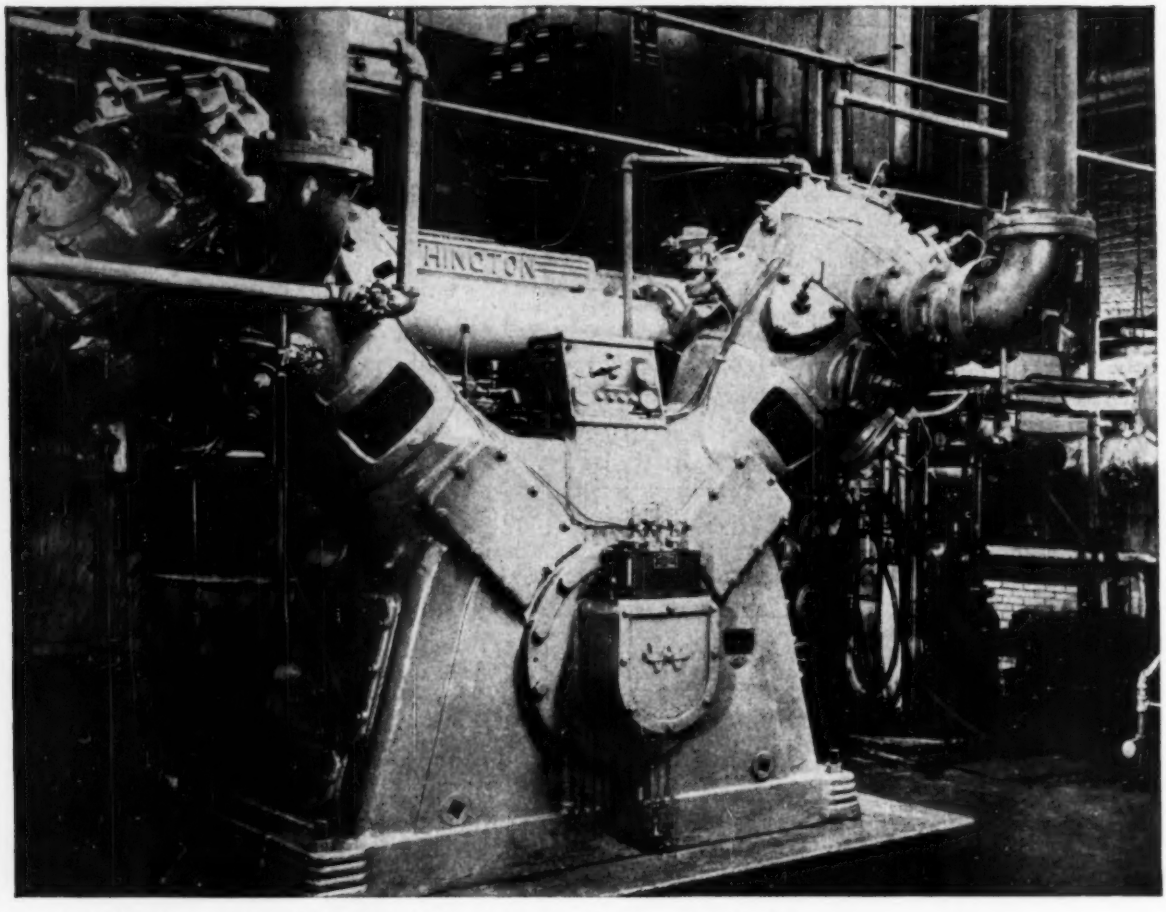
Textile Organon

World Textiles: The Outlook is Improving

Though it is too early for any world production figures for 1959, textile economists agree that output is rising—substantially in some cases. After a 1958 production fall of 8½%, rayon-acetate is stronger in many nations. The non-cellulosics (synthetic plastic fibers) hardly felt the 1958 downturn and are continuing their astonishing rise. Cotton is up. But wool will probably stay about even for the year, though at higher prices.

The improved outlook comes—paradoxically—in a time of steadily increasing competition in world markets. The older producers (Britain, for example) are battling imports from newer mass-production industries (India, Hong Kong, Communist China), and the natural fibers steadily lose ground to the man-made. Yet overall demand is rising. And the industry itself is "slimming down" and modernizing. While textile employment is falling in important producing countries, increased output per worker more than makes up for it.

How to Use Power More Efficiently . . . Idea #1



This Worthington Y-type compressor has given dependable service for many years in an automotive plant.

CENTRALIZED COMPRESSORS

can cut air power costs

One of the first problems faced when building a plant is whether the compressors should be installed in one main room or whether each compressor should be placed near the point of ultimate use.

Many plants are finding that "centralized compressors" are the best solution to the problem. Here are some of the reasons why:

1) A minimum number of operators is required. One well trained operator can run several centrally located compressors.

2) Savings on installed accessories are possible. One large after-cooler and receiver can often serve two or more compressors.

3) A minimum number of service lines such as water, electricity and air is required, reducing initial investment.

4) Installation costs for foundations can be reduced by tying the foundations together into a common mat. This usually results in a more stable foundation.

There are additional advantages in using "centralized" air compressors which a Worthington expert will be glad to discuss if you are planning or modifying a compressor installation.

For further information on compressors and a copy of Worthington's "Power Planning Guide", which includes nine ideas for more efficient power use, write to Worthington Corporation, Dept. 108-11E, Harrison, New Jersey, U. S. A.

WORTHINGTON

These new projects of the UN Fund are designed to unlock new opportunities for world business

Argentina	electric power survey	$250,000
Cen. America	industry research	900,000
Ghana	agricultural survey	305,000
Greece	groundwater survey	245,000
Guinea	development survey	400,000
India	training institute	860,000
Israel	water management study	320,000
Jugoslavia	training institute	905,000
Poland	training foremen	700,000
Thailand	harbor study	600,000
Turkey	technical university	1,500,000
U.A.R.	irrigation study	300,000
U.A.R.	soil survey	265,000

Spending Millions to Lure Billions

IN ARGENTINA, work is underway this month on the premier project of the United Nations Special Fund, one of the newest tools for encouraging economic growth. The sum of $250,000 has been allocated to study Argentina's electric power needs, and—hopefully—to draw a blueprint for urgently-required power investment over the next decade.

A quarter of a million dollars seems small against economic development needs usually measured in thousands of millions. But the Fund's aim, according to its director, Paul Hoffman, is to "help bring into being the pre-conditions for successful public and private investment." In other words, spend a few millions to lure thousands of millions.

The projects listed above are all designed to unlock business opportunity—and businessmen in many nations will be watching their progress. Writing in the October issue of the influential *Foreign Affairs*, Hoffman, once director of the U.S.A.'s Marshall Plan operations in Europe, explains what kind of activities the one-year-old Special Fund will assist:

—**Natural resources surveys,** to disclose untapped wealth. For example, the Ghana study (table, above) will try to determine whether large-scale growing of sugar, cereals, other irrigated crops on the Volta River flood plain is feasible. Successful findings could open for cultivation 50,000 acres, perhaps establish the sugar industry in Ghana, and—by "chain reaction"—other new industries.

—**Research laboratories,** to discover new applications for local resources. For example, the five-nation Central American Research Institute for Industry aids sponsoring governments and businessmen to develop new industries. The Special Fund would help finance expansion.

—**Training institutes.** For example, an Indian Industrial Instructors Institute would produce, each year, 800 instructors in fields varying from carpentry to mechanics. The UN contribution would supply facilities and staff.

There are many more possibilities. In addition to the 13 projects so far approved, the Fund has 122 requests from governments—calling for more than $130-million in financing. This year, the Fund has about $26-million available, with hopes that in 1960 some $50-million will be subscribed. And there is the "multiplier effect" of local contributions. The Argentines are putting up an additional $50,000 for the power study, and the New Delhi government is supposed to add the equivalent of $2-million for the training institute.

• **Array**—With the UN Special Fund now operating, the national, regional, and international development and technical assistance bodies in the field present a confusing array. More are coming. The Latin American Development Bank is in the process of ratification; at the recent meeting of the World Bank and International Monetary Fund agreement in principle was reached that some kind of overall International Development Association should be formed. So the question might be raised as to what role the Special Fund should play.

Hoffman suggests in *Foreign Affairs* that a world development association is needed, not only to supply more capital but to lead and coordinate all the other programs. Meanwhile, he makes clear that the Special Fund is not a lending institution, provides no capital for investment, engages in no field operations on its own. For the time, its function is to clear the way for the capital from the other sources.

Speaking of the world's experience in economic development in the 1950s, Hoffman declares:

"Wholly inadequate attention has been given to investment in education, training and surveys of resources. It is impossible to develop sound programs without knowing what a country's resources are, and without training the people to make effective use of those resources."

In the 1960s, Hoffman sees a "really explosive situation" unless average per capita income in 100 "less-developed" countries and territories rises to $160 yearly, up from today's $125. The only way to do that, he says, is to develop resources and skills that can attract new capital. And he estimates that an extra $40,000-million is required between now and 1969.●

From the U.S.A. →

Three completely new compact cars, joining two—the Rambler and Lark—already selling fast.

Ford Motors' FALCON

From Europe →

Two new models, plus Germany's "people's car" and a dozen or more aggressive competitors.

The radical MORRIS MINI-MINOR

Battling for a Place on the World

They will compete with the 1960 regulars, economy cars, imports, in a wild scramble for the motorist's favor.

THE COMING YEAR will be one of the most fiercely competitive in automotive history.

• **In the U. S. A.**—Late in October, Detroit's third largest automaker—Chrysler Corp.—rolled its new "compact" car into the showrooms. Chrysler's Valiant joined Ford's Falcon and the General Motors Corvair, both released earlier in the month, as the American motor city's answer to foreign competition and the changing tastes of the U. S. consumer.

• **In Europe**—Across the Atlantic, the European industry is bustling with the start of a new auto year. There are new models, new expansion plans, and new—sometimes unfamiliar—competition. British Ford and British Motor Corp. have unveiled brand new cars, Volkswagen is talking expansion and new features for the ubiquitous "people's" car, and in Paris, the head of Renault was heard to say in September that in the face of mounting competition, his organization must, in effect, "grow or die."

Throughout the world, the motoring public will have a wider choice of products than it has had in 20 years.

I. Detroit Makes History

Launching of the Valiant, Falcon, and Corvair—known in the industry as the "compacts"—marks the first time in automobile history that the Big Three American producers have come out with an entirely new automobile in the same year. Marketing men are guessing. No one yet knows how well they can compete with established domestic and imported cars at home, or whether they can re-establish U. S.-made automobiles in foreign markets.

• **Choice** — Certainly, the U. S. auto buyer has plenty to choose from. Besides the compacts, the Big Three are out with their regular assortment of cars, and foreign manufacturers are increasing their marketing efforts.

The two U. S. "independents"—American Motors Corp. and Studebaker-Packard Corp.—are keeping up the sales pressure with their Rambler and Lark, respectively.

Most observers agree it will be a good year. In contrast with 1957 and recession-struck 1958, more people will be shopping for new transportation, to replace cars bought in the boom years of 1954 and 1955.

The new compacts are not small, "economy" cars on the Volkswagen-Renault scale. But there is no doubt that the imports, along with the Rambler and Lark, have influenced Detroit's thinking.

• **No Change?**—Two years ago, many Detroit executives were still insisting that Americans wanted bigger, faster, fancier cars. But their voices began to quaver as thousands of Volkswagens appeared on the highways—followed by fleets of Renaults, Hillmans, and later American Motors' larger but "compact" Rambler. In 1957 and 1958, two bad years for Detroit, American motors surprised everyone by doubling sales. This year, sales may double again, to 350,000.

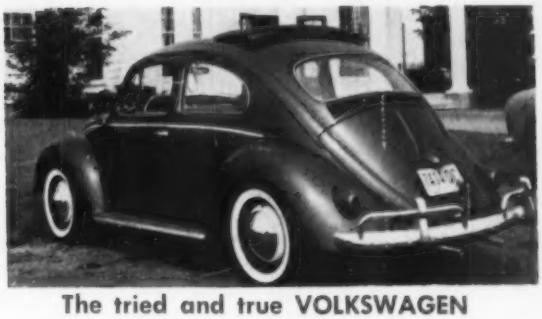
Imports have been moving dramatically. From virtually nil in 1955, imports rose to 98,200 in 1956, to 373,000 in 1958, and are headed for 450,000 to 500,000 this year.

But Detroit did not wait until all

Chrysler Corp.'s VALIANT

General Motors' CORVAIR

A streamlined FORD ANGLIA



The tried and true VOLKSWAGEN

Boulevards

the figures were in. While the motor magnates kept silent, their designers and engineers were working around the clock. The three new 1960 compacts are the result, though each is reported to be based on studies and designs made long before 1957.

In size and price, the compacts fit somewhere between their bigger brothers—Ford, Chevrolet, Plymouth—and imports such as the Volkswagen, Renault, Fiat 600, Hillman, British Ford's Anglia and Prefect. In style, the new American cars lean a bit toward European makes—but they look larger. They have not been designed to compete directly with the Volkswagen class. They will cost at least $300 to $400 more—about $2,000, without extra accessories—and are designed to provide more of the space and comforts of standard U. S. automobiles.

• **More Economy** — New design and lightweight materials allow greater economy. Engines are smaller, gasoline consumption less, replacement parts are cheaper. Of the three, only General Motors' Corvair has a major engineering innovation. It uses a flat air-cooled motor, made almost entirely of aluminum and mounted in the rear. GM is insisting that this provides better traction, braking, and steering than the compacts with conventional engines (not surprisingly, the others are arguing this point heatedly).

Detroit plans to produce 200,000 compacts in the final quarter of this year (provided steel shortages do not intervene), and maintain at least this pace through 1960. There is a lot of optimism. General Motors predicts the U. S. public will buy 6.9-million cars in 1960, including perhaps 500,000 imported, almost up to the 1955 record.

• **The Question**—But which cars will they buy? In the scramble for sales, some makes will suffer. Some say the used cars, others imports, and many believe the regular low-priced and medium-priced models will have to give way.

American Motors President George Romney, whose pronouncements get a lot of attention in the U.S.A., does not expect to lose sales. "If anyone is going to get hurt, it will be the present medium-priced cars and other bigger car lines."

He points out that of those who bought Ramblers in 1959, 41% traded in Chevrolets, Fords, and Plymouths, and 28% more handed in higher-priced cars.

Foreign manufacturers will undoubtedly feel the pressure, according to *Business Week*, both in the U. S. and in "third" markets. Today European imports hold over 8% of the U. S. market, and have all but ousted American cars from other areas.

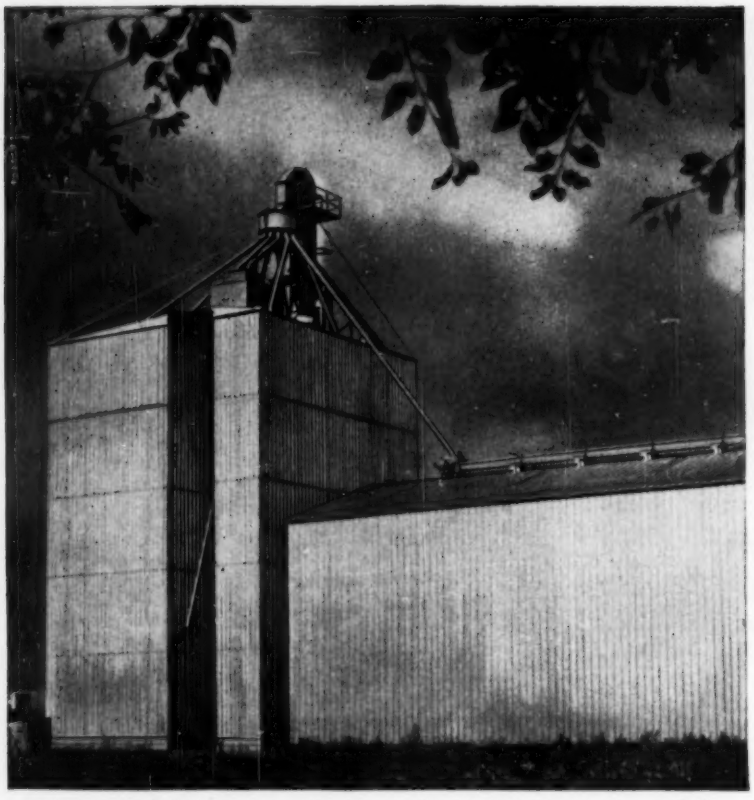
American exports of autos have dropped from a postwar annual average of 200,000 to no more than 100,000 this year. While many factors are involved, the size and initial cost of standard U. S. cars, and their higher operating expense, bulk large. Detroit believes it has in the compacts a better export product—if not for Europe, surely for much of Africa, Asia, and Latin America.

II. Europe Faces Competition

European auto executives do not seem to worry much about the new American cars. But they are aware, as never before, that the competitive pace is quickening.

A Frankfurt auto dealer recently declared to an American journal: "The number of dealers is growing and the competition is getting harder. . . . Customers are starting to shop around."

• **Supply/Demand**—This may be a natural consequence of the surging growth of European output, more than doubling in five years. In 1959, the big five producing nations (Germany, Britain, France,



Butler square tanks (left) contain elevator equipment, and provide 1700 metric tons of storage. Butler steel building, 40' x 160' x 30', (right) has flat storage space for an additional 4330 metric tons.

Need grain storage space?

Contact BUTLER

Butler, the world's largest fabricator of grain storage structures, can *quickly* supply a complete grain handling and storage system to fit your exact storage needs—in one package.

This includes: Butler round or square steel tanks, Butler steel buildings and all the necessary grain handling equipment that will be required.

Every part of a Butler building or tank is carefully designed and fabricated in advance. Parts are merely bolted together. In most cases, even a large grain storage system like the one above, can be assembled and erected with a minimum of tools in just weeks by unskilled labor. This saves months of construction—saves you money.

Butler steel grain storage systems offer other economies and advantages. Fumigation is easy and economical. Butler tanks and buildings are firesafe. They are economical to maintain.

Put your grain storage requirements in the hands of Butler, the leader in grain storage engineering and the fabrication of steel grain storage systems. For complete details, write:

BUTLER

BUTLER MANUFACTURING COMPANY

International Sales Subsidiaries:

Butler International Company • Butler Pan-America Company

7518 East 13th Street, Kansas City 26, Mo., U.S.A.

Cable Address: BUMANCO

BUILDINGS • OIL TRANSPORTATION • GRAIN STORAGE FACILITIES

Italy, Sweden—in that order) will turn out about 5-million cars, trucks, and buses, equal to 72% of U. S. production. The extreme shortage situation has ended and while great growth in per capita auto ownership is undoubtedly ahead for Europe, supply and demand are not now so badly out of balance.

The Common Market and Free Trade Area schemes give special flavor to the competition. The premium will be on large, efficient production-sales-service organizations, and Europe can expect to see, according to a British observer, a "series of national and international mergers, take-overs, and tie-ups." Indeed, they have already begun to appear.

Another possibility for the European industry in years to come may be more frequent model changes. Though Europeans regard Detroit's yearly style extravaganza as "wasteful" and unnecessary, stiffening competition in a much larger market may make more frequent changes desirable. As novelty and technical differentials diminish, model changes may one day be the only way to keep sales up.

• **Style Changes**—As it is, 1960 is bringing some important new cars from Great Britain and the Continent. Ford Motor Co. Ltd. has radically restyled its Anglia and Prefect, so that they bear little resemblance to the box-like English Fords of the past. The 1960 model looks lower and longer, with a sharply sloping hood, a roof overhang at the rear, a car-wide chrome grill.

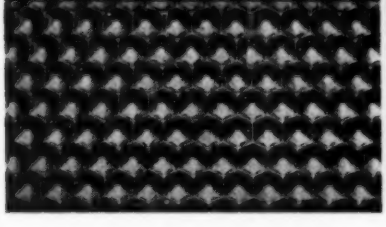
British Motors Co. also is pressing for a share of the U. S. and world markets that have been going to Volkswagen, Renault, and Fiat. Its Austin Seven and Morris Mini-Minor—two names for basically one car—have front wheel drive, an engine mounted transversely over the drive, and are said to offer economies beyond the popular Continental cars.

And Volkswagen, undaunted by either British or U. S. competition, has announced plans to increase production by 20% in coming months. With an eye on the changing market, the German company will offer automatic transmission on its Volkswagens for the first time this Spring. ●

Whatever you make...

CORNING GLASS can help you make it better

OFFICE BUILDINGS . . .
You can have any kind of lighting you need, because Corning's Lightingwares can make light glareless, shadowless or natural. Corning has a great variety of inexpensive-to-install lightingwares to fit every office decor.



PROCESSING INDUSTRIES . . .
Corrosion Resistance—Long Service Life—Visual Control—Easy Cleaning. These are the qualities of "PYREX" Piping. Corning's rugged Plant Equipment Glassware is engineered to your individual needs and for low-cost installation.

ELECTRONICS FIELD . . .
"Extreme Durability"—that's why Corning's full line of electronic components are so dependable. Corning's Capacitors and Resistors, custom-built to your specifications, do a more efficient job in less space.

Because it is more versatile than other materials, glass from Corning can help you cut your production costs, increase the efficiency of your manufacturing process, give your product more sales appeal.

Glass can be made strong, porous, or opaque. It can be made impervious to heat, chemicals or abrasion. It can be made to conduct, insulate or store electricity . . . and do these things in any shape you need.

Corning has over 50,000 glass formulae catalogued. Let us know what you want it to do, and we'll help you find a glass that can do it.

FIND OUT how you can profit from glass. Write for FREE information on the applications of glass that interest you. Corning Glass Works, International Division, Export Sales Department A-11, 717 Fifth Ave., New York 22, N.Y., U.S.A.

From CORNING research comes PYROCERAM*
An Entirely NEW Basic Material Made From Glass
WATCH!... as PYROCERAM helps industry make its products better.
*Corning's trademark for its crystalline material

you can do almost anything with **GLASS**

Visit the Corning Glass Center at Corning, New York!

BBY

HITACHI
ELECTRIC TOOLS

Hitachi, Ltd.
Tokyo Japan
Cable Address: "HITACHI TOKYO

⅜" Electric Drill,
Type NU-DH

Portable Electric Drills
Electric Bench Drills
Portable Electric Grinders
Electric Bench or Floor Grinders
Toolpost Grinders
Angle Plate Grinders
Hand Grinders
Electric Resinoid Grinders
Electric Sanders

Electric Finishers
Electric Orbital Sanders
Electric Line Sanders
Portable Electric Polishers
Electric Bench Polishers
Electric Tappers
Electric Screw Drivers
Electric Nut Runners
Electric Nibblers

Electric Hand Shears
Electric Jigsaws
Electric Circular Saws
Portable Electric Planers
Electric Square Chisels
Portable Electric Blowers
Electric Drill Kit
Drill Chucks

Electric Resinoid Sander,
Type PUS-BRH

Electric Grinder,
Type EBC

Electric Circular Saw,
Type PS-10

How to Keep Growing

Morehead Patterson

A COMPANY that has multiplied in size 20 times in the last ten years should know what a corporation is and how it grows. But Morehead Patterson (photo), chairman of American Machine & Foundry Co., is still trying to define just what kind of a company AMF is and plot its growth for the future.

AMF today is involved in a dozen major operations—from atomic reactors to de-salting equipment—but its biggest money maker is a machine closer to the consumer, an automatic pin setter for bowling alleys. Development of the "pin spotter" came after repeated failures, and after AMF had invested millions of dollars in the venture.

In seeing the pin spotter through to success, Patterson was guided by three operating precepts:

—Find a need, the "perception of a requirement."

—Keep going until you perfect a device to fill that need.

—Learn all you can about the field or industry you want to serve.

• **End of the Pin Boy** — Patterson's investigations convinced him that there was a real need for a machine to replace the inefficient boy who customarily sets up an alley's tenpins. The U. S. bowling market was big and growing bigger and there was an opportunity for renting rather than selling machines which promised a continuing income.

AMF researchers came up with a successful machine in 1952, after a dozen years of development. Since that year, business has skyrocketed. The company now has 62,000 machines on lease—in contrast to the 4,500 potential machines that it once had estimated.

Working closely with customers, AMF has given new vitality to the bowling industry. It helps new investors find sites and financing. Alleys have become bigger and more luxurious, catering to new crowds of bowlers—young and old, male and female.

This close coordination with the customer followed a pattern set more than 40 years ago, when AMF began its corporate life. Though others said it couldn't be done, AMF developed a successful cigar-making machine. The invention revolutionized the cigar industry, consolidating hundreds of small shops into a few large companies capable of mechanization. Year after year AMF grossed about $10-million that gave it the resources for the pin spotter and other ventures.

In recent years, AMF has had its share of defense work. It has pioneered in the development of nuclear research reactors. And it has developed a machine that reconstitutes tobacco scraps into sheets than can be fed into cigar and cigarette machines.

• **How to Grow Further** — But none of these operations may be the growth opportunity Patterson is looking for. Nor is he gambling on the American bowling industry expanding indefinitely.

Many AMF men believe that the greatest hope for the company may be in overseas markets. AMF has had extensive experience in selling tobacco machines and other equipment overseas. It has the distribution system to sell in almost any country in the world.

Patterson has always been a salesman of ideas. And he believes that many areas of the world—with their growing populations and changing income trends—are looking for new ideas. It may be a new sport, like bowling, and AMF is already aggressively selling the idea of mass bowling—and its machines—in foreign markets. Or it may be something else.

Basically, Patterson regards AMF as simply a group of people used to working together, with a broad assortment of ideas and skills in technology, distribution, and finance. It is ready to invest large sums of money when it finds the "perception of a requirement" that can lead to big profits. (*Business Week, Sept.* 12, *p*188)

Appliance Makers Do Battle

TOSHIBA is after a bigger share of washer market with ads like this.

TRANSISTORS flooding world markets are the international aspect of the electric and electronic revolution that is churning ahead in Japan. At home, the Japanese consumer is coming of age—demanding new comforts, new home conveniences, and yielding to appeals like the ad at left offering a $66 electric washing machine that "washes three big kimonos at once."

Toshiba — for Tokyo Shibaura Electric Co. Ltd.—finds itself in a fierce battle for this growing consumer market. Before the war it dominated the appliance field, but now it has slipped to second place behind Matsushita Electric Co. (IMD,Feb,p14), and has further competition from Hitachi Ltd. and Sanyo Electric.

• Appliance Boom—Toshiba, with

ECONOMICAL YALE TRUCKS SPEED CARGO ALONG THE QUAI

SINGAPORE—These efficient, versatile Yale fork lift trucks quickly move unit loads of goods on pallets from pier warehouse to shipside for loading. In the warehouse, they lift and stack loads of all kinds—bags, crates and cartons. Their capacities range all the way from 1,000 to 100,000 lbs.

LIGHTWEIGHT MANEUVERABLE YALE TRUCKS STACK PALLET-LOADS OF CASES

COPENHAGEN, DENMARK—Cases of beer are stacked for shipment, quickly, economically, by Yale Worksavers. These lightweight compact Yale electric trucks are ideal for use in cramped areas and on low-load floors. They have unusual maneuverability and operate with easy finger-tip control. Capacities up to 7,500 pounds.

YALE PETROL TRUCK WITH PNEUMATIC TYRES MOVES TIMBER OVER ROUGH TERRAIN

VANCOUVER, BRITISH COLUMBIA—Heavy duty Yale petrol trucks with pneumatic tyres prove ideal for outdoor handling operations. They move heavy loads over rough terrain easily because of their high degree of stability. All Yale time saving and cost saving petrol trucks have indoor and outdoor uses. Capacities: 2,000 to 20,000 lbs.

- Yale makes the world's most complete line of Petrol, LP-Gas, Electric and Hand Lift Trucks.
- All Yale Industrial Lift Trucks are uniformly high in quality, wherever manufactured.
- All Yale equipment available in currencies of the free world.
- For further information contact your Yale Sales and Service Representative—located in principal cities of the world.

YALE®
INDUSTRIAL LIFT TRUCKS
TRACTOR SHOVELS · HOISTS
YALE & TOWNE

The Yale & Towne Manufacturing Company, Chrysler Building, New York, U.S.A.
Manufacturing Plants: Velbert Rhld., Germany • Wednesfield Staffs., England • Phila., Pa., U.S.A.
Licensed Manufacturer: FENWICK—Saint-Ouen, Seine, France • Milan, Italy • Barcelona, Spain

its close ties to U.S.A.'s General Electric, also produces a variety of heavy electrical equipment for industry. But a third of its sales income now comes from consumer products, and it is aware that this phase of the business has unlimited horizons.

In prewar Japan, the strongest home consumer items were radios, bicycles, and sewing machines. The market for these is thriving again, but the consumer now is buying washing machines, refrigerators, electric rice cookers, TV sets, and vacuum cleaners in quantity, *Business Week* reports.

• **Toshiba Resources**—Toshiba has formidable resources for expansion. It has been assisted through the years by General Electric, which still owns about 7.2% of Toshiba stock. Toshiba suffered heavily during the war, ending up with useless government credits and demolished factories, but it has recovered steadily.

Under the guidance of Taizo Ishizaka, one of the company's chief post-war creditors, Toshiba has acquired new capital and the support of 31 licensing agreements with foreign concerns. These agreements (10 of them with GE) cover everything from heavy electrical gear to fluorescent lights, TV, and telecommunication equipment.

Today Toshiba has about 25% of Japan's appliance market. Its products have an excellent reputation for quality, but some observers say its styling and salesmanship are not always up to its competitors.

• **The Competition** — Among competitors, Matsushita got away to a running start by recognizing before anyone else that the Japanese people were in the market for washing machines and other modern appliances. The company's success has been sparked by its dynamic president, Konosuke Matsushita.

Neither Hitachi nor Sanyo compete with Toshiba in a complete line of appliances. Hitachi devotes much of its industrial resources to making construction equipment, turbines, and semi-conductors for home and world markets. Sanyo, a pioneer in electronics research, has been a leading manufacturer of transistor radios, and is moving ahead in stereophonic tape recorders. ●

Wherever motors run

Everyone, it seems, knows the beautiful, racy Mercedes-Benz touring-sports cars – the incomparable 300 SL, and the thoroughbred 190 SL. Perhaps you've even driven the famous passenger-car models – lots of people have – in nearly every country of the world! Ofcourse, one meets other Mercedes-Benz vehicles, too; not only on the broad highways of the world, but on the byways and lanes, the side-ways and plains – the buses and trucks, the special vehicles, the universal tractor "Unimog" – the Diesel motors in ships and locomotives – the Diesel power for oil-wells, etc. Out of this broad experience and wide area of use has come the great technical achievement of the Mercedes-Benz products. Wherever motors run, Mercedes-Benz provides dependability, endurance and economy – an engineering triumph for the vehicles and motors that proudly bear the three-pointed star!

Regardless of the task, the Mercedes-Benz multi-faceted range of production provides the answer. For example, Mercedes-Benz produces 11 different basic types of trucks with 127 different available models, ranging from 1¾ to 12 ton pay-load. This new program provides you with the most modern trucks – greater pay-loads and advanced technical achievements.

It has always been the basic policy of the Daimler-Benz AG to provide its customers with the greatest value for their investment. Consequently, Mercedes-Benz has made firm friends in 136 countries of the world. After all, quality counts – everywhere, always, under all circumstances.

Quality counts!
The value of any vehicle is dependent on durability, efficiency and economy; consequently the Mercedes-Benz reputation is world-renowned! A Mercedes-Benz fulfils your every expectation, and then gives you even more, for years to come - through quality!
Production range: passenger-cars; trucks; buses; universal tractor "Unimog" and Diesel-engines.
MERCEDES-BENZ

CONTACT!

Has your production manager an urgent query?
— You can answer it while you are on the road.
Do you want that urgent quotation sent off?
—You can instruct your secretary while you are driving.
Do you want a van to make an urgent call?
—It can be arranged in minutes although they are all on the road.

With your cars and lorries fitted with Pye Radio Telephones you are in control.

Please write your name and address in the margin of this advertisement and post it to us for information by return.

Mobile Radio Telephone

PYE TELECOMMUNICATIONS LTD · NEWMARKET ROAD · CAMBRIDGE · ENGLAND · Tel: TEVERSHAM 3131 · Grams: PYETELECOM CAMBRIDGE
TA13

Technology in Brief

Progress in Auto Parts

Bettinger Corp. of the U.S.A. believes it has a system for ceramic-coating passenger car mufflers to protect them from burning and corrosion. The Milford, Massachusetts, concern thinks the technique will make possible a 160,000 km. lifetime warranty. Its secret involves (1) a slight change in the formula for the ceramic, and (2) special machinery for dipping the mufflers in the ceramic. (Business Week, Aug. 15, p 137) . . . Steel clad with vinyl plastic took another step forward when U.S. Rubber Co. licensed its bonding method to Ford Motor Co. (IMD—May, p 46). Now Ford plans to make its own vinyl and steel to come up with new auto exterior trims. To date, the process has been licensed to 17 U.S. companies and in 27 other nations. (American Machinist, Aug. 24, p 65)

Making Hydrogen—Without a Catalyst

Crude petroleum and other hydrocarbons can be turned directly into hydrogen without the use of a catalyst, reports *Petroleum Week*. A new process, developed by Texaco Inc. in the U.S.A., preheats the fuel and oxygen separately, feeds them into a special burner for partial combustion. The feed converts into hydrogen and carbon monoxide above 1100 C.

Making Rubies—in the Plant

Rubies made by a new process that yields gems free from strain and resistant to thermal shock were unveiled recently in New York. A California chemist says his process is similar to the hydrothermal growth technique he uses making emeralds. Most synthetic rubies now made by flame-fusion are limited in commercial appeal because of internal strains.

Two New Fibers: Zantrel and Vycron

A new fiber called Zantrel—developed by European companies under Japanese patents—reportedly combines the strength and ease of care of cotton with the drape of rayon and luster of silk. It is a bit more expensive than rayon but less than half the cost of other synthetics. (Business Week, Aug. 29, p 48) . . . Another synthetic offering high strength and heat resistance is being introduced by North American Rayon Corp. Called Vycron, it is a polyester fiber that falls in the same general class as Dacron or Terylene, but differs from them in chemical constitution and structure. (Product Engineering, Aug. 24, p 14)

Solar Shaves for Egyptian Students

Solar energy will heat water for the 6,500 students at Al-Azhar Theological University in Cairo. The solar heaters, located on the roofs of student apartments, will cost only a quarter the price of butane heaters, standard in Egypt. (Engineering News-Record, Aug. 27, p 49)

Now—Foamed Aluminum

The first U.S. commercial production of foamed aluminum begins soon. Dynamic Metals Corp., a Houston, Texas concern, will make 3-million kilograms yearly via the Bjorksten process, in which zirconium hydride is mixed with molten aluminum. The product will go into building and roofing panels. (Chemical Engineering, Sept. 7, p 63)

New Prospects for Piping Solids

Pumps have proved they can move coal, ore, chemicals —and they can also partially process a product in transit.

PUMPING SOLIDS by pipeline is more an economic problem than a technical one. Success of the Ohio coal line and earlier installations for coal, chemicals, ore and sand (IMD, July, p22) has demonstrated what can be done. Studies and pilot-plant operations now are pointing toward the piping of grain, wood chips, saturated brine, and slurries of limestone, sand, ore, and lignite.

As railroad costs go up, many such solids will move overland by pipe, Julian Nardi, chief mechanical engineer of Ford, Bacon & Davis, Inc., New York, recently told members of the American Society of Civil Engineers. His firm has been building such pipelines for 25 years.

• **When to Pipe**—Nardi lists the following conditions under which a pipeline may prove more economical than railroads, barges or trucks:

—When large quantities of material are to be moved;

—When there is a high annual load factor;

—When the line will be used for many years;

—And when long distances are involved, or where special circumstances exist.

Pipeline transportation has two basic advantages over railroads and trucks: A smaller portion of its operating cost is in labor and material; and the cost of returning empty containers is eliminated.

Pumping solids short distances already has become a major method of materials handling in processing plants, especially in the mineral industry. Mill tailings often are disposed of as a slurry. In both mining and excavation, hydraulic movement of loose material has proven efficient and economical.

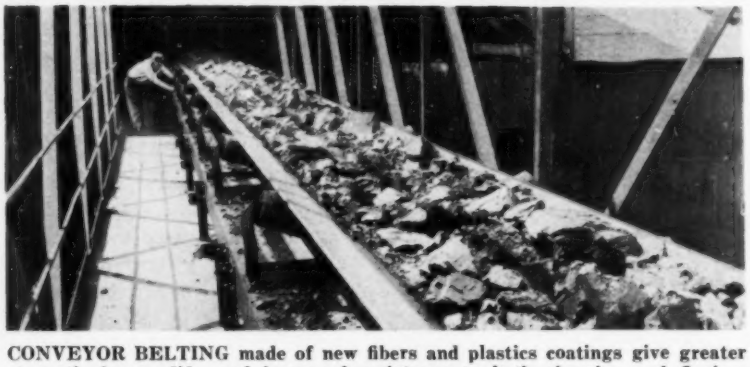
• **Changing Economics** — But long-distance piping of solids often has been blocked by economic considerations, even after detailed plans have been made. In 1937, feasibility studies were made for a 88-kilometer line to transport salt as saturated brine in New York State, after a similar but smaller line had been built in Louisiana, U. S. A. Designs were practically complete and much of the right-of-way secured, when the railroads substantially reduced their tariff on rock salt—and the pipeline ceased to be economically attractive.

The plan has been revived several times, and indications are now that it may be built in the near future. Although pipe costs have doubled in the past 20 years, the increase in freight rates, mining and handling costs has been enough to offset this factor. The customer will use the salt in his process as a brine, so that it will not be necessary to dewater and recrystallize the material.

• **Simple, but Complex** — Nardi believes that whenever small or light particles are involved—and especially if water is involved too—piping of solids offers advantages. Though the method is basically simple, a wide range of facts must be known about the product, its slurry, and the proposed line, before plans can go ahead. Here are some of them:

Characteristics of the solid. Data should include its specific gravity, friability, grindability, and attrition rate. Also, the size and shape of particles, the characteristics of fines in suspension, and the material's wettability, solubility, and chemical stability in air or water.

Characteristics of the slurry. Included should be the friction head or loss at various velocities, densities and size ratio of solids; the critical velocity for various densities and solid sizes; the apparent viscosity; the effect of temperature,



CONVEYOR BELTING made of new fibers and plastics coatings give greater strength, longer life, and improved resistance to both abrasion and flexing.

Man-Made Fibers

NEW MATERIALS often are identified with jet plane, missile and atomic developments—but many of the materials from yesterday's research today are providing profit-saving products for everyday uses in a factory's operation and maintenance. Look at the above picture for an idea of the versatility of today's synthetic fibers, plastics, laminates.

They are serving as protective coverings in scores of unusual uses. On the Canadian plans (far right) thin sheets of coated nylon protect tons of rock salt from snowstorms until the salt is needed for winter highway use. The lightweight material can be moved by one man, yet it resists tearing.

On a U.S. construction job, a

pressure and agitation; hydrogen ion concentration; gases in suspension, and the chemical stability of the slurry.

Characteristics of the pipeline system. Information should include the distance solids are to be pumped, topography of the route, quantity of solids to be transported, quantity and quality of water available, power required. Other factors are spacing between pumping stations, the type of pumps needed, chemical additives that may be required, and flushing and drainage facilities.

• **Processing in Transit**—Piping solids offers the interesting possibility of being able to partially process a material while it is in transit. Nardi believes that this can lead to economic justification for piping a whole new line of products.

Planned is a line that would transport wood chips in a water slurry over long distances and then near the terminus inject chemicals into the pipeline and heat a section of it. The product would have been partially pulped during its trip from the lumber mill. (*Engineering & Mining Journal, Sept. p*93)

Jets Primed for New Jobs

CAN AIRCRAFT JET ENGINES do a heavy industrial job, such as drive the compressor on a natural-gas pipeline? Two large American companies, Cooper-Bessemer Corp. and the Pratt & Whitney Aircraft Div. of United Aircraft Corp., believe they can. The theory soon will be tested by installing a Pratt & Whitney J-57 jet engine, one of the most widely used in aircraft, at a pumping station of Columbia Gulf Transmission Co.

A jet engine and an industrial gas turbine are similar in principle. Both use a blower to press air into a combustion chamber, and then burn fuel to expand this air and create a powerful exhaust thrust. In both, part of this thrust aids in driving the blower.

In an airplane, the rest of this thrust goes out the tailpipe to push the craft forward. In a stationary unit, the same exhaust energy is picked up by a second turbine to drive machinery.

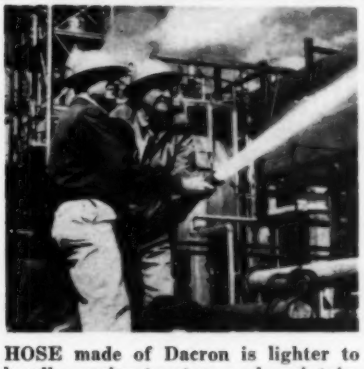
• **Savings**—Using a jet engine in an industrial plant offers some obvious economies, both in initial cost and maintenance. The J-57, for one thing, is mass-produced. The millions of research dollars spent in bringing it to its present efficiency have been amortized over the course of 17,000 engine sales to aircraft builders. In contrast, only several hundred large gas turbines have been built in the U. S. A. and abroad and to a large extent they are custom-built.

The Pratt & Whitney engine packs a lot of power—10,500 horsepower—in its 2-ton turbine. This means savings in material and installation costs. To get the efficiency of a J-57, an industrial gas turbine has to use the bulky ductwork of a regenerator. The regenerator raises a turbine's efficiency by using heat from the exhaust stack to preheat the air.

When an industrial turbine breaks down, repair and overhaul has to be done in the field. Heavy cranes and large crews of men have to be brought in, and the unit may be out of service for an extended period of time.

• **Quick Repair** — Cooper-Bes-

FILTERS of Orlon last longer, do jobs that may defy natural fibers.



HOSE made of Dacron is lighter to handle, easier to store and maintain.

BULK MATERIALS, like rock salt, are protected by nylon from storms.

Do Everyday Industrial Jobs

nylon "overcoat" covers a huge chimney as it is being built during the winter. As the chimney goes up, the nylon covering rises with it. Masons continue their work, despite severe storms.

The new materials are providing giant collapsible containers for shipment of bulk liquids and solids —oil, grains, sugar. They are serving as unusual filters—under conditions of corrosion and high temperature—and they are used to give greater strength and resistance to conveyor belts, gaskets, packings, wire insulation, and inflatable dunnage for the shipment of machinery.

Belting made of synthetics can be thinner yet carry heavier loads than conventional conveyor belts. Fire hose of Dacron requires no drying after use, but it resists mildew. And machine parts can be sealed under corrosive operating conditions with such fibers as Du Pont's new Teflon; the material is chemically inert, self-lubricating, and has a wide operating range. (*Purchasing Week, Aug* 31, *p* 12)

semer hopes to be able to pull out and replace jet engines with almost the speed of an aircraft engine change. Shutdown time will be reduced from days to hours. The old engine will be repaired at the factory, while a new or reconditioned unit takes its place.

Industrial turbines are expected to run continuously for months without repair. In contrast, turbo jet engines normally are overhauled every 1,000 to 1,400 hours. But airplane engines take a severe pounding from their full-throttle takeoffs, and studies have convinced Cooper-Bessemer that the time between overhauls can be increased to over 8,000 hours in a steady-running industrial plant.

Though the first application involves gas transmission, the prospects cover a very wide horizon. If the first unit proves itself, jet-engine turbines may soon be used for everything from pumping petroleum to generating electric power. Smaller, modified units may eventually drive ships and locomotives. (*Business Week, Sept* 12, *p*83; *Chemical Week, Sept* 12, *p*55)

Power Plants Get a Helper

AUTOMATED CELL generates 5-kw of power, with water as a byproduct.

A FUEL CELL that may eventually permit power stations to store off-peak energy and later supply this energy during peak loads was demonstrated recently in a private laboratory at Cambridge, England, and later in New York. Known as the Bacon Cell, the 5-kilowatt, 24-volt unit generates electricity directly from hydrogen and oxygen, like similar cells now under intensive testing in the U.S.A. (IMD, Sept, p26). But the Bacon cell is fully automatic, and designed to link economically with existing power sources.

At a power plant, the cell could provide a simple method of utilizing off-peak power. During the night, excess energy would be rectified into direct current and used to electrolyze water into hydrogen and oxygen. The gases would be stored until peak hours, then fed into batteries of Bacon cells. The resultant direct-current power would be converted into alternating current for general use.

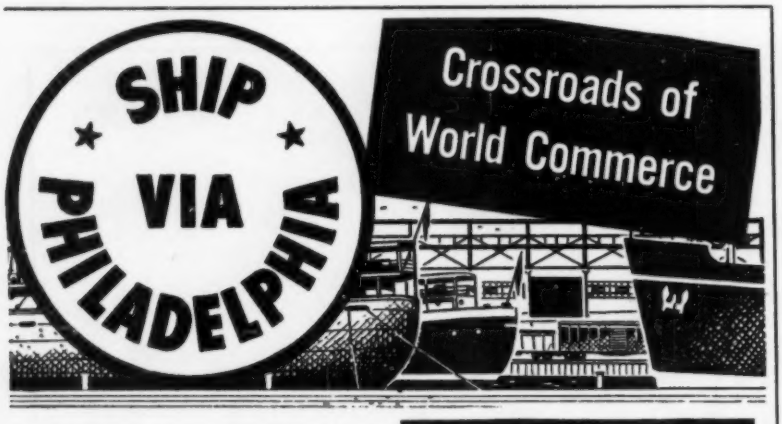
• **Powering Cars**—Engineers say the cell could be made suitable for powering cars and small trucks. It has no moving parts except control valves, and it is therefore silent and vibration-free. The only exhaust from the unit is water. A car or truck would be refueled merely by replacing the oxygen and hydrogen tanks.

The cell uses about 50 grams of hydrogen and 400 grams of oxygen (566 liters of hydrogen and 283 liters of hydrogen at standard temperature and pressure) to produce a kilowatt-hour of electricity. A liter of water is produced during such use. An overall efficiency of 45%, including losses in the rectifier and inverter, is claimed for the cell.

Each segment of the cell consists of two circular electrode plates made of porous sintered nickel. Between the electrodes is a 2-mm layer of 40% potassium hydroxide electrolyte.

• **Ten Years of Research**—The present model represents ten years of work by F. T. Bacon, its inventor. Refinement of the cell now also is being speeded up by Universal Winding Co., which has manufacturing rights for the unit in the U.S.A. Universal already has delivered some small fuel cells to the U. S. Air Force.

Further development of the cell is going ahead to reduce the size and weight of its control unit, and also to investigate more fully the effects of impurities in the gases. Because of the high cost of automating the cell, it appears likely that units smaller than 100 watts will not be economical. (*Electrical World, Sept.* 21, *p*76)



★ Within day's distance of half of industrial U.S.A.
★ Direct ship-rail, ship-truck cargo transfer
★ Modern equipment speeds cargo handling
★ 100-mile inland location means shorter land haul

For information write:
DELAWARE RIVER PORT AUTHORITY
Box 817, Camden 1, N.J., U.S.A.

In Philadelphia, Pa.—Public Ledger Bldg.
In Pittsburgh, Pa.—Park Building
In New York, N.Y.—42 Broadway
In Chicago, Ill.—327 S. LaSalle St.

Delaware River Port
PHILADELPHIA • CAMDEN • TRENTON • CHESTER • WILMINGTON

Oceans Offer Varied Riches

SCIENTISTS of 38 nations recently met in New York to exchange information on their studies of the world's mightiest factory—the ocean—and to learn more about its products and methods of "processing" materials.

The reports given at the International Oceanographic Congress were of keen interest to the petroleum, food, and drug industries.

The oceans contain an almost unlimited quantity of useful organic and inorganic material. Only during the last few years has a serious effort been made to explore the oceans and to find economic means of tapping some of their hidden mineral wealth (IMD, Oct, p21). The petroleum companies have been particularly active in surveying the ocean's floor, in their search for new reserves.

• **Food and Drugs** — But the oceans' free-floating organic life may be of even greater value to food and pharmaceutical companies. A highlight of the congress was the report by U.S.A.'s Paul Burkholder on his work in producing B vitamins from bacteria taken from shallow water near Puerto Rico and the U. S. mainland. These "bacterial isolates" produced significant amounts of nicotinic acid, vitamin B_{12}, biotin, and thiamine.

Russia's B. A. Skopintsev reported that "organic matter in sea water results mainly from decomposition of dead organisms (mainly plankton) and their life-time excretions." The decomposition takes place chiefly in the upper layers of the ocean, which can mean inexpensive recovery of this material.

• **Atlas of the Seas**—The United Nations Educational, Scientific and Cultural Organization, a co-sponsor of the New York meeting, has arranged a conference for next July to see what various governments can do toward compiling an atlas of the "populations of the sea." Experts believe that such information would aid in evaluating oceans as a future food source. (*Chemical Week, Sept.* 19, *p*104)

STAR HACKSAW BLADES

...Universally known

● **FOR QUALITY**—Proper hardness and uniformity in fabrication. Step by step production with each step carefully checked.

● **FOR PERFORMANCE**—Efficient tooth design plus sufficient set for clearance. A full line for all metal and nonferrous cutting jobs.

● **FOR ECONOMY**—Long lasting, efficient cutting. They always justify their cost... no finer hacksaws are made—anywhere.

Inquiries invited from established agents in certain areas.

CLEMSON BROS., Inc.

MIDDLETOWN, N. Y., U.S.A. 4874

MAKERS OF HAND AND POWER HACK SAW BLADES, FRAMES, METAL CUTTING BAND SAW BLADES, CLEMSON POWER AND HAND LAWN MOWERS.

Call on CC

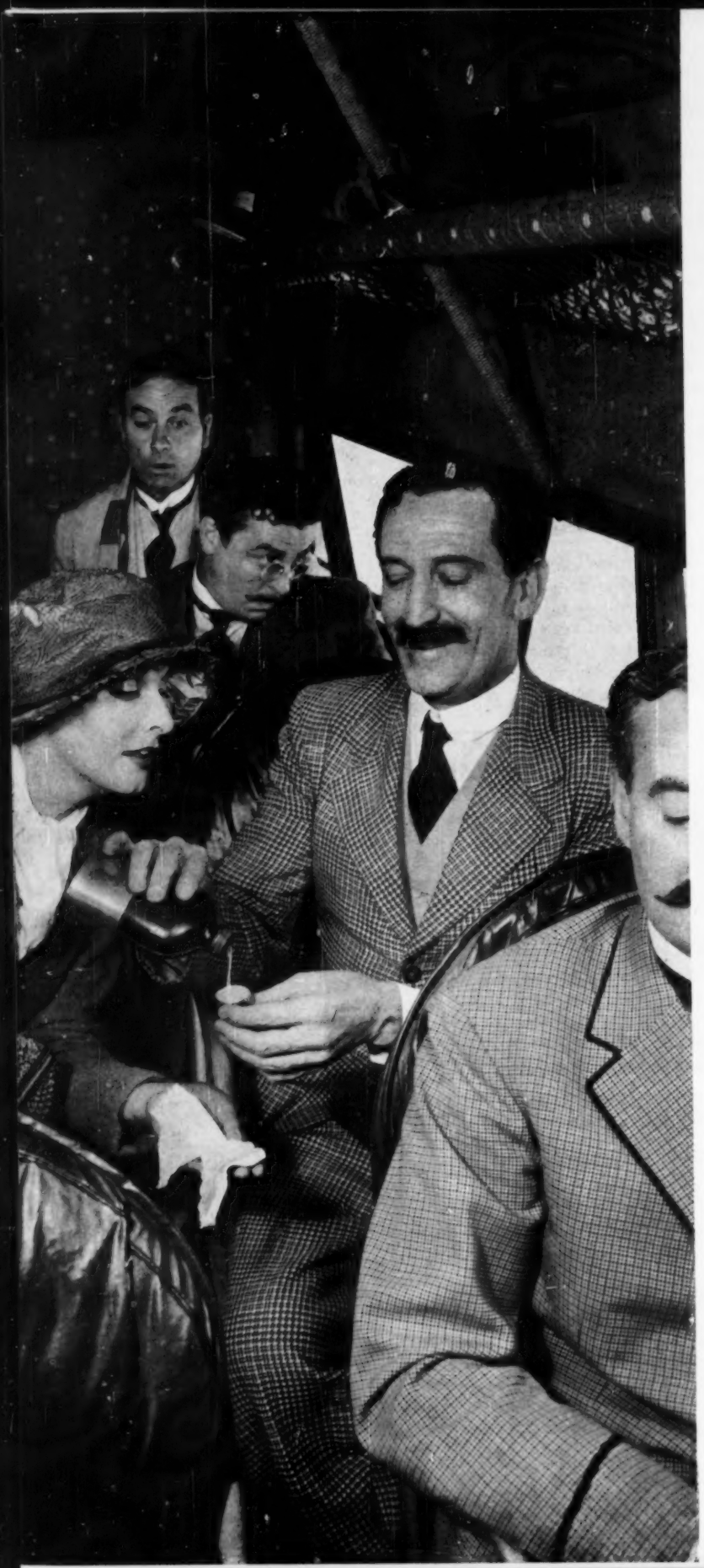
for every vaporizing oil heating need

CC makes it as easy as A B C—Accessories, Burners and Controls are all part of Controls Company of America's *one-source* for vaporizing oil burning components. Write today for a copy of our condensed catalog — it contains full facts on our complete line.

A-P SERIES 2700 FLEXATEMP THERMOSTATIC CONTROL KIT — Converts any standard, manually operated A-P constant-level oil valve to fully automatic, wall-thermostat control. One of many electric and non-electric kits to suit any heating need.

DRAFBOOSTERS® — Two models perform forced draft function on vaporizing type oil burners. Rating: 115 v. 60 cycle a-c. 14 watts (full load), 20 amperes (full load). Starts and operates efficiently at 50 v.

CONTROLS COMPANY OF AMERICA
International Division
Schiller Park, Illinois, U.S.A.
Controls AG:
Postfach 313, Zug, Switzerland



Like father-like son...

to demand the best is to fly KLM

It's more than tradition that sons take after their fathers and choose KLM Royal Dutch Airlines. A preference based on performance! In KLM's pioneering days flying Fokker F-VII-A meant record-breaking speed and comfort. Now, in its 40th anniversary year, KLM features the world's most advanced aircraft the Douglas DC-8 Intercontinental Jet and the Lockheed Prop-Jet Electra. Then and now, a standard of excellence characteristic of KLM. And even in this age of jet speed and efficiency you will experience that to KLM you are more than a passenger - you're a person. Follow the example of two generations of happy travellers: demand the best - fly KLM . . . the world's FIRST airline.

40 years
1919 1959
THE WORLD OVER
KLM
ROYAL DUTCH
AIRLINES

New Ways to Fight Corrosion

To protect plant equipment, engineers are using coatings, plastics parts, electrolysis

NEW MATERIALS and techniques today are being put to use to minimize the equipment damage done by cooling water in petroleum refineries and food and chemical plants. These plants use many condensers and heat exchangers. And if a lake or river is nearby, the most economical method often is to pump this water into the cooling system without preliminary treatment, then return it to its source.

The result is a serious corrosion hazard, which can break down pumps, valves, pipelines, and heat exchangers in a matter of months or weeks. Even when water is treated and reused, precautions must be taken to guard against the physical, chemical, and electrolytic effects of water on equipment.

• **Value of Coatings** — Internal coatings of various kinds have been used with some success. New synthetic formulations—such as urethanes, glasses, vinyls, Teflon—have been rapidly taking the place of conventional tars and asphalt.

But all coatings have certain drawbacks. Some intricate cooling equipment is almost impossible to prepare and cover with a coating. Also, damage to a coating during operation often cannot be detected unless the entire system is stopped for inspection. And, more significant, no coating yet has been found that adheres permanently to internal surfaces of a cooling system.

A modern trend is to replace wood and steel with plastics for various portions of a cooling system. Cooling towers are being built of plastics instead of wood. Plastics pipes are becoming common, and plastic-lined steel for elbows and other fittings is making headway.

• **Cathodic Protection**—A promising development is the recent application to cooling-water pipes of the "cathodic protection" process formerly applied on pipeline and storage-tank operations. The system acts like an electric battery in reverse. Sacrificial anodes of magnesium, zinc, or aluminum are installed at given distances in the pipe. These are slowly eaten up by corrosion, with the pipe itself acting as the cathode and the cooling water acting as the electrolyte.

A British petroleum refinery recently has found similar protection by installing permanent, non-sacrificial anodes in pipe. An electric current is passed through the anodes to balance the electrolytic system.

• **Air Cooling**—Another answer to the problem is air-cooled rather than water-cooled heat exchangers. Such installations take more space than conventional heat exchangers, but internal corrosion is completely eliminated. A 100% air-cooled petroleum refinery was recently put on stream in Ireland. Other refineries are being equipped with complete or partial air-cooling in the U.S.A., Germany, U.K., Holland, etc. (*Petroleum Week, Sept.* 18, *p*46)

The 'Vulture' a sturdy, heavy-duty machine for polishing or scrubbing large floor areas. When used with its companion the 'Dipper' vacuum drier, as illustrated below, floors are scrubbed and dried ready for immediate use.

Floor cleaning is a job for a

Cimex

THE WIDEST RANGE OF FLOOR CLEANING MACHINES IN THE WORLD

Scrubbing and polishing with a single machine. Photo by courtesy of W. Harold Perry Ltd. Main Ford Agents, Edgware, Middlesex, England.

Whatever the floor, wood block, parquet, lino, stone, terrazzo or cement, whether it needs scrubbing, polishing or sweeping there's a CIMEX machine built for the job. CIMEX equipment is designed for speed, high performance, ease of maintenance and handling and is cutting down labour costs and improving floor surfaces in Factories, Stores, Offices, Hospitals and Hotels throughout the world.

May we send you a copy of our latest colour folder.

Cimex-Fraser Tuson Ltd.

75-97 CRAY AVENUE, ORPINGTON
KENT, ENGLAND

On time every time with TRADERS!

GREAT RANGE...
GREAT POWER CHOICE!

TRADER 15, 20, 30, 40
4 cylinder petrol or diesel engine

TRADER 40, 50, 70
6 cylinder petrol or diesel engine

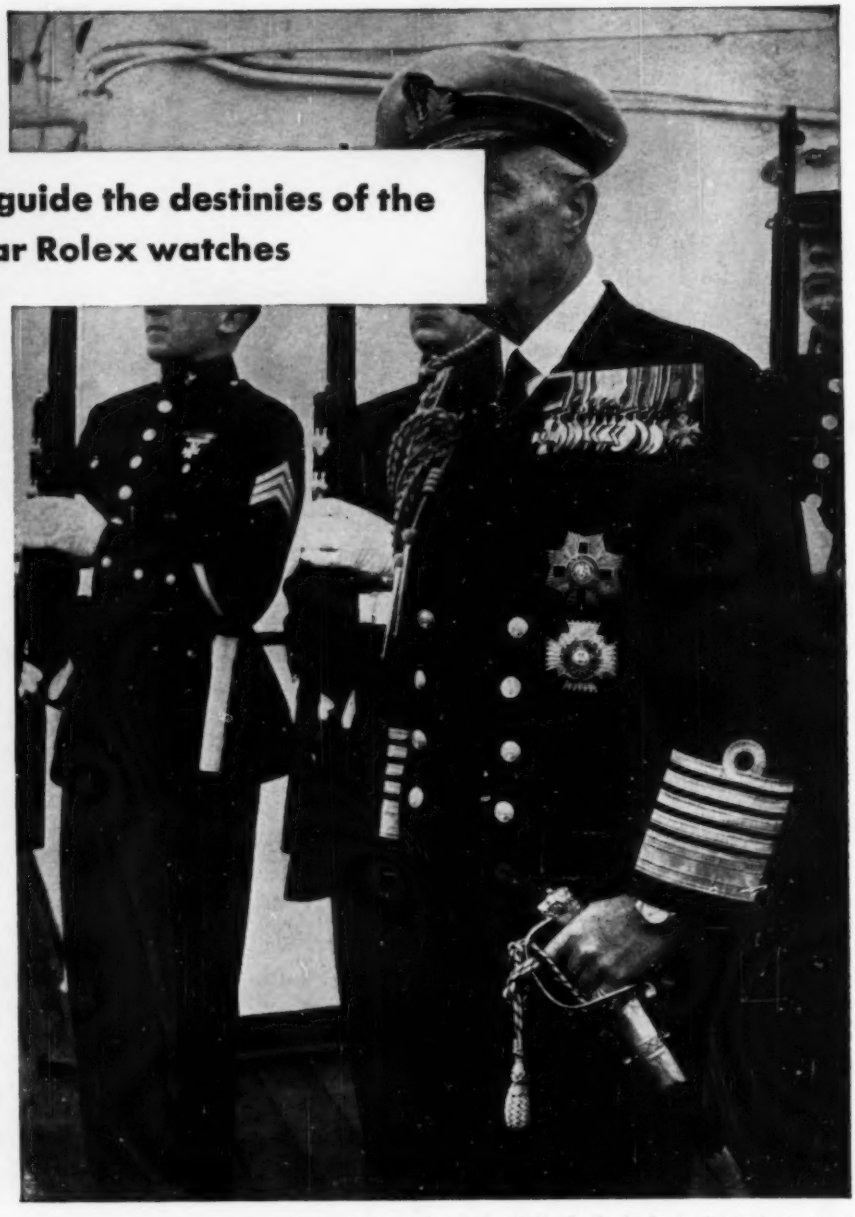
DELIVERIES GO LIKE CLOCKWORK when the job is entrusted to Traders. Powerful, dependable Traders save time, save money at every point: they're easier to drive, to manoeuvre, to service, styled for maximum payload capacity and engineered to cut stresses to a minimum for trouble-free, profitable, extra-long life. For quick work well done—*at lowest cost!*—specify Traders *every time!*
See your Ford Dealer today.

There's a Trader for *every* trade—
Backed *everywhere* by world-wide Ford Service

SPECIAL BODIES? All types available: your Ford Dealer has all the details.

FORD

MOTOR COMPANY LIMITED · ENGLAND



Men who guide the destinies of the world wear Rolex watches

YOU KNOW their names as you know your own. You know their faces from a thousand newspaper photographs, their life stories from a hundred magazine articles. You have seen them and heard their voices on newsreels and on your television screen. Their actions and decisions influence the pattern of our lives.

We cannot mention their names, or show pictures of them. It would not be fitting to do so, for they include royalty, the heads of states, great service commanders. But we invite you to look carefully at the next pictures that you see of them, at their wrists as well as their faces and clothes. You will notice that in almost every case they wear a wrist-watch. That watch will most likely have been made by Rolex of Geneva.

We are proud of the service given by Rolex watches to so many eminent men. It is scarcely necessary to point out that the performance of these watches is, in the highest degree, accurate and dependable.

The Rolex Oyster Perpetual— *culmination of three Rolex triumphs. In 1910 Rolex gained their first Official Timing Certificate for a wrist-chronometer. In 1926, Rolex invented the Oyster watch-case, the first truly waterproof case in the world and still the finest. In 1931 Rolex invented the first rotor self-winding mechanism. A new refinement of this Perpetual rotor powers the Oyster Perpetual silently and automatically.*

A ROLEX
RED SEAL
CHRONOMETER

ROLEX

A landmark in the history of Time measurement

The Rolex Oyster Perpetual Datejust, *the most remarkable achievement in watchmaking. Every Datejust is awarded an Official Timing Certificate by a Swiss Institute for Official Time-keeping Tests with the mention "Especially good results." This accuracy is protected by the famous Oyster case, guaranteed 100% waterproof to a depth of 165 feet under water. The watch is self-wound by the Perpetual rotor mechanism and the date is shown on the dial, changing instantaneously every midnight, and magnified by the Cyclops lens for easy reading.*

A ROLEX
RED SEAL
CHRONOMETER

THE ROLEX WATCH COMPANY LIMITED (*H. Wilsdorf, Founder and Chairman*), GENEVA, SWITZERLAND; 1 GREEN ST., MAYFAIR, LONDON, W.1; THE AMERICAN ROLEX WATCH CORPORATION, 580 FIFTH AVENUE, NEW YORK; THE ROLEX WATCH COMPANY LIMITED, VICTORY BUILDING, TORONTO

Mobile Paint Spray Booth

With this traveling spray booth, companies can take advantage of the speed and labor-saving qualities of spray painting for large vehicles like railway wagons that are not self-propelled. Designed to fit into any repair shop, the booth straddles the vehicle and moves at a speed of up to 12.5 cm/sec forwards or backwards on tracks, allowing the work to be completely spray-painted in a very short time. Railway wagons placed in line can be painted one after the other. The booth itself takes up only about a fifth of the space occupied by a static booth.

The movement of the booth is controlled from a switch. The painter stands in a compartment on one or other side of the booth and adjusts the height of his platform as required. *Aerograph-DeVilbiss Co. Ltd., 47, Holborn Viaduct, London, ECI, England.*

For the Chemical Industry— New Foam-Cleaning Method

Complex equipment like heat exchangers and pipelines is cleaned thoroughly and economically—using only a little liquid—with this new foam generator. The small amount of liquid is made possible because the ratio of foam to solvent averages 20 to 1. The foam solvent is pumped directly from the generator into the tank or pipe to fill every bend or corner of the equipment.

Foam cleaning makes it possible to clean chemically towers, pipe assemblies, and other equipment that would not stand the weight and hydrostatic pressure caused by liquid cleaning. *Dow Chemical Co., Dowell Div., Tulsa, Okla., U. S. A.*

Pencil-Shaped TV Camera Views Tubes from Inside

Built to operate inside 7.5-cm (3-inch) tubing, this new closed-circuit television camera makes possible critical inspection of atomic-reactor tube welds while the tubes are still in the pile. Stainless steel reactor tubes blacken under radiation, but defective walls remain clean and show as white areas on the monitor. *Electronics Div., Diamond Power Specialty Corp., Lancaster, Pa., U. S. A.*

For Fast Accounting

A new electronic accounting machine is said to make it possible for one person to prepare the payroll for 500 employees in a singie day. It can also be used for other purposes like computing mortgage payments and taxes.

The Compu-Tronic can multiply two numbers, such as 9,999,999,999 times .99999, in a fraction of a second. There is also a device that automatically prevents the operator from continuing if a mistake occurs. *Nat. Cash Register Co., Main and K Streets, Dayton 9, Ohio,*

Conductive Paints

A German company has produced a metallic pigment, called Kontaktogran, that is highly conductive and not impaired by heat or moisture. With a suitable binder, the company says, coatings resistant to temperatures well over 205 C can be made. The paints need no additional electrolyte and are said to have withstood tests in industrial atmospheres at relative humidities as high as 95%. Aniline dyes can also be incorporated in the paints. *Eckart-Werke, Furth-Bayr, Germany.*

Cellulose Insulator

Fujitac, an insulating material made of cellulose triacetate, can be used as a base for phonograph records and tapes, as a packing material, and in small electric motors. It insulates against both heat and electricity. *Fuji Photo Film Co., No. 3, 2-Chome, Nishi-Ginza, Chuo-ku, Tokyo, Japan.*

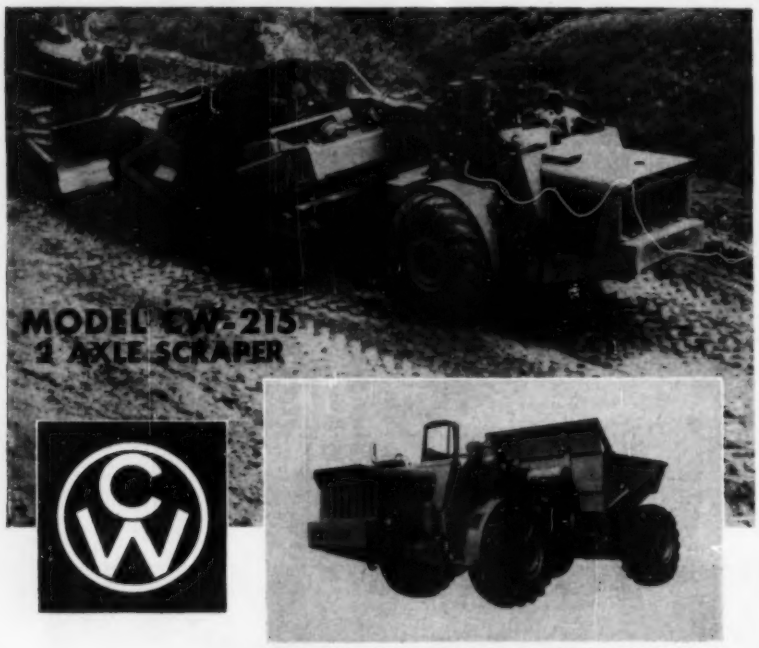
Thin, Prebonded Plywood Plastic Panels

A new market for plywood is anticipated by the makers of this plywood-plastic paneling called Panel-Gems. Designed for such uses as interior wall paneling and commercial counter-covering of the formica type, the new product is a melamine plastic-and-plywood laminated sandwich only .625 cm thick. Besides resisting heat, water, and wear like hard plastic, it is pre-bonded, workable, and is lower priced than melamine-surfaced materials have been up to now.

To prevent the warping that had occurred in similar laminated sheets, the plastic has a 1.5-mm V-groove expansion joint that allows the top layer of plastic to expand freely. The grooves make the panels look like individually fitted tongue-and-groove boards, and incidentally provide a place to hide the heads of the matching, conically pointed nails.

The Panel-Gems sheet shown above (measuring 1.2 x 2.4 meters) has an oak finish. Six other wood grains are available, with more finishes, including marbled patterns, to come later. Installation costs should be no more than for ordinary plywood. Home craftsmen can work the panels with regular shop tools. *Plywood Co., Inc., Jamaica, N. Y., U. S. A.*

CURTISS-WRIGHT
EARTHMOVERS



REAR DUMP IS INTERCHANGEABLE WITH SCRAPER USING SAME POWER UNIT.

MORE PROFIT FOR EVERY WORKING HOUR

Loads fast — travels fast . . . moves more dirt per hour — that's the reason the Curtiss-Wright CW-215 makes more profit every hour it's on the job. The powerful 240 h.p. engine provides the drive you need on even the most rugged terrain, while CW features such as hydraulic Roto-Gear steer, positive roll-out ejection and constant live winch give your production an added boost unmatched by any competitive machine. Don't let outdated equipment cut your profits . . . put the CW-215 to work for you.

AD NO. 10-3

TRACTOR DRAWN SCRAPERS | 3 AXLE SELF-PROPELLED SCRAPERS | REAR DUMP UNITS

EXPORT DIV. CURTISS-WRIGHT CORPORATION
50 ROCKEFELLER PLAZA, NEW YORK 20, N. Y. Cable: AEROEXCO, N. Y.

DISTRIBUTED BY:

ALGERIA: Union Industrielle Africaine, Algiers; ARGENTINA: Alejandro & Rodolfo Taylor, Buenos Aires; BRAZIL: Sul Brasileira De Comercio, Importacao E Exportacao S/A, Porto Alegre; CEYLON: Anglo-Asian Company Ltd., Colombo; COLOMBIA: Amerex Ltda., Bogota; DOMINICAN REPUBLIC: Atlas Comercial Co. C POR A, Ciudad Trujillo; ECUADOR: Cia General De Comercio Y Mandato (Guayaquil), Guayaquil; FRENCH EQUATORIAL AFRICA: Union Industrielle Africaine, Port-Gentil; FRENCH WEST AFRICA: Omnium Industrial Africain, Dakar-Etoile; GREAT BRITAIN: Peter Woozley Ltd., Norfolk; GREECE: Eta, Engineering & Technical Agencies, Ltd., Athens; INDIA: Greaves Cotton & Company, Ltd., Bombay; IRAN: Caspian Trading Company, Tehran; JAPAN: Takachiho Koheki Company, Limited, Osaka; KOREA: Eisenberg & Company, Inc., Seoul; MOROCCO: S.A.M.I., Casablanca; NEW ZEALAND: Cory-Wright & Salmon, Ltd., Wellington; PAKISTAN: Dean & Webber, Karachi; PARAGUAY: Sociedad Anonima Comercial Manuel Ferreira, Asuncion; PHILIPPINES: G. A. Machineries, Inc., Manila; PORTUGAL: Rolim Comercial S.A.R.L., Lisbon; SPAIN: MacLaurin Morrison Y Cia., S.A Madrid; SWITZERLAND AND LICHTENSTEIN: Robert Aebi and Cie. A.G., Zurich; TAIWAN: Lien Chen Ltd., Taipei; THAILAND: Suphan-Phanich Company, Ltd., Bangkok; TUNISIA: Union Industrielle Africaine, Tunis; TURKEY: Burla Biraderler VE SSI, Istanbul; VENEZUELA: Drew Bear & Sons C. A., Caracas; YUGOSLAVIA: Intercommerce, General Trade Agency, Belgrade.

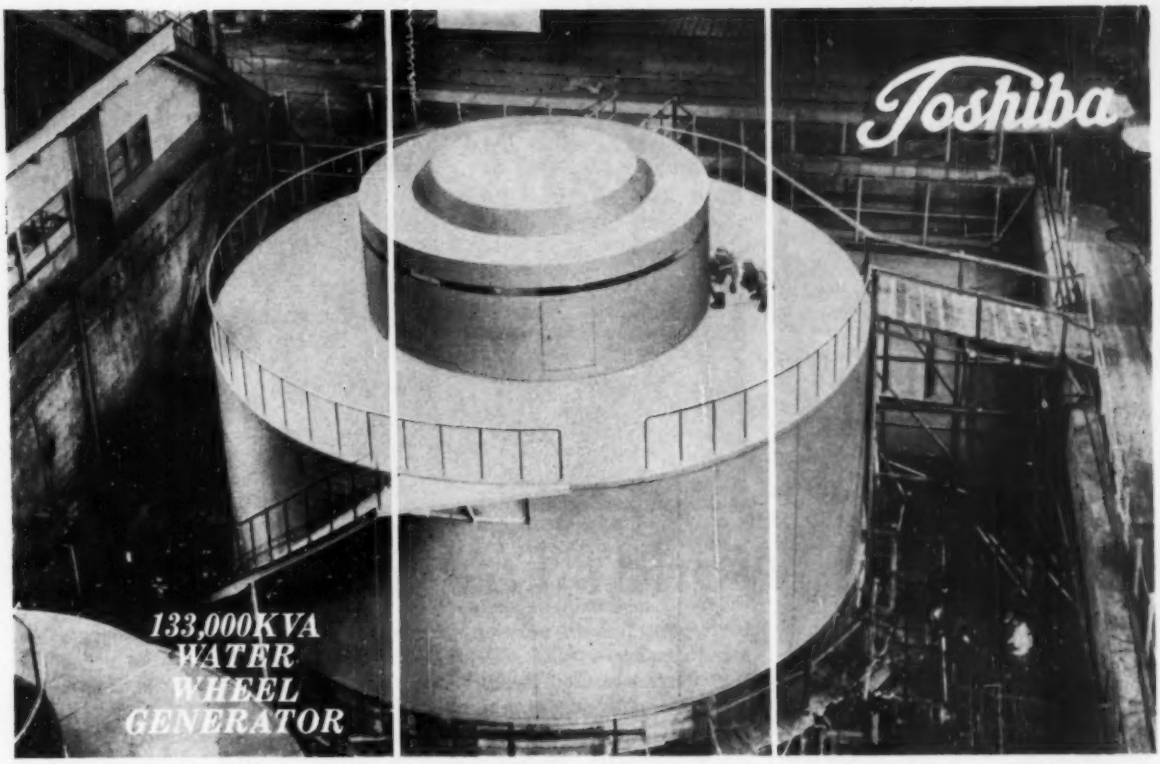
Pedestal-based Crane Has Pinpoint Accuracy

Le Tourneau's new pedestal crane can handle 6-ton loads with a .02-cm. accuracy, thanks to separate gearmotor drives for lifting, turning, or boom movements. This eliminates gear-train changes in going from one position to another. Electromagnetically controlled, spring-loaded disk brakes on each gearmotor apply automatically whenever power to the motors is cut off. The system gives the operator fine control over the movements of the boom, provides powered down-travel of the load, and stops motion in case of power failure.

The crane's pedestal base takes up only .45 square meters, making it suitable for crowded areas in plants, docks, etc. *R. G. Le Tourneau, Inc., Longview, Texas, U.S.A.*

In brief . . .

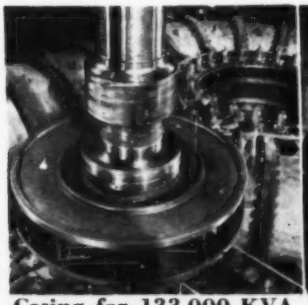
Tiny V-Dot indicator made by *Inertia Switch, Inc.*, 311 *West 43rd St., New York* 36, *N. Y., U.S.A.*, shows whether a shipment of delicate equipment has suffered excessive shock in transit. . . . **Model S-54 stapler** operates on contact, has no motor to create noise or wear out. From *Staplex Co.*, 780 *Fifth Ave., Brooklyn* 32, *N. Y., U.S.A.* . . . New **compressed air motors**, gear-motor type, 5 to 14 hp output, promise outstanding economy. Made by *Vereinigte Oesterreichische Eisen u. Stahlwerke, Linz a.d. Donau, Austria.*



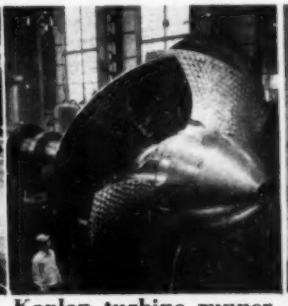
LEADING THE WAY IN ELECTRICAL MANUFACTURING . . . TOSHIBA

Toshiba with more than 80 years of experience is now ranked among the largest and foremost electrical manufacturers in the world, one of the 100 leading foreign corporations listed by Fortune Magazine. With over forty thousand employees, Toshiba is capitalized at 69.2 million dollars (25 billion yen) operating nineteen manufacturing plants and maintaining two research laboratories. Toshiba's scientific research and development have brought forth many major advancements in all its electrical products. Toshiba's manufacturing scope covers almost every type of electrical product under its six main divisions which are: Heavy Apparatus, Lamp and Tube, Telecommunication and Electronics, Electrical Appliances, Automation and Phonograph Record.

The high reputation, enjoyed by Toshiba, both at home and abroad, is due to the dependability and advanced technology of her products. Toshiba exports to more than eighty countries and has technical collaboration with the world's leading electrical manufacturing companies. Toshiba guarantees the high quality and performance of all its products, from the smallest transistors to the largest generators.

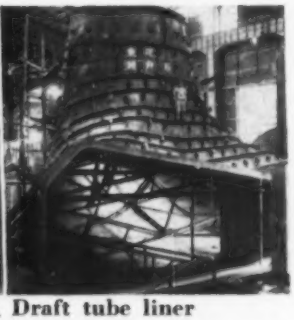


Casing for 133,000 KVA water wheel generator for Okutadami Power Station



Kaplan turbine runner

Assembled 270,000 KVA power transformer



Draft tube liner

TOKYO SHIBAURA ELECTRIC CO., LTD.

GINZA NISHI 5-CHOME, CHUO-KU, TOKYO, JAPAN CABLE: TOSHIBA TOKYO

G. B. Giorgini coordinates Florence fashion showings, now a "must" for buyers.

Italy Lures World's Fashion Buyers

THIS MONTH, in the northern hemisphere at least, the social season begins. The slim Italian suits have left the Palazzo Pitti (cover picture) for the fashionable boulevards; Balenciaga's and Givenchy's latest silhouettes make news at the opera.

Meanwhile, department stores in many nations are wooing milady's less-moneyed sisters with encouraging slogans ("Paris says: Look luxurious; X & Co. says: You can afford to") as well as crowds of copies and adaptations, and imports of everything from dresses and knitwear to costume jewelry.

More and more, the high fashion houses of Western Europe are seeking professional buyers—especially from the U. S. A., the largest market by far. The French fashion business now has a New York company handling its marketing relations with U. S. retailers; significantly, one of Jacques Heim's collections is called "Jeune Fille for America." Italian designers cross the Atlantic to study U. S. needs at first hand; and in Florence, Giorgini centers his showings on the taste of professional buyers rather than private clienteles.

One of the most important developments in the couture world in the last decade has been the rise of the Italian fashion industry. In a recent article, *Business Week* (Aug. 31) describes how sound commercial sense, as much as artistry, has brought the Italians to their present high position. Rome and Florence have not the prestige that Paris has; and there is still a shortage of good pattern makers and cutters. But their colorful, stylish creations—coats, gowns, and especially sportswear—and huge ready-to-wear volume (particularly knitted clothes) have given buyers a new stopping place in Europe.

I. A Profitable Business?

Export sales go a long way toward keeping this somewhat precarious industry in the black. So do fashion "by-products": In Paris, for instance, wealthy private clients account for about 70% of the $22-million yearly gross from high fashion. But their ranks are rapidly thinning, and designers make much more from sidelines like perfume, ready-to-wear, stockings, than from their creations.

In 1948, Jacques Heim, for one, introduced a simplified line to sell at $100-$200 a copy instead of the usual $300-$600. Immediately, professional buyers began buying Heim copies. And today, eight of the leading 12 houses are offering a collection of ready-to-wear clothes adapted from their haute couture models.

There are those who think that the popularization of the haute couture models risks a sort of prostitution of great design. And some people look with foreboding to a growing "internationalization" of taste. But these are risks that most of the leading design houses are now prepared to take.

• **How the Buying is Done**—The couturiers, in the words of one fashion expert, feel that buyers of foreign models "get something for very little." Chiefly, a retailer or manufacturer buys a dress under bond (exclusive rights are much higher). Then for six months the store uses the dress for display or to copy, either in toto or in part.

The designers' complaint: Buyers pay a few hundred dollars for a model and make thousands of copies, while the designer gets only the sales price. Also, buyers tend to lionize one designer.

The couturier, on the other hand, spends from $50,000 to $100,000 on each collection. As one designer put it: "A model must be sold 10 times to cover the cost of creating it. And the cost must be amortized in less than six months. Headline fashions of this week will be dead in five months."

To this, buyers retort that they pay a fair price. "Sometimes we get only one idea from the European collections. Even when we use their models, we make a heavy investment and risk our reputations." But they flock to the showings, and they seem to agree that they do get ideas.

• **Look First to Paris**—Nobody doubts that Paris will continue as the capital of haute couture. Paris has its artisan textile makers, who do not balk at selling a manufac-

turer a meter or two of cloth, its glove makers, hat makers, shoemakers, dressmakers. Add to this several brilliant designers always ready to gamble on an idea, and you have a situation that is the amazement—perhaps the envy—of designers in mass-production markets like the U. S. A. and Germany.

II. How Italy Does It

Before the main performance in Paris, buyers trek to Rome for some five showings daily at the salons of Eleanora Garnett, Mingolini-Gugenheim, Patrick de Barentzen and 13 other couturiers. Then they rush to Florence for a concentrated dose of boutique and high fashion—Capucci, Pucci, Simonetta—administered almost entirely in the Palazzo Pitti.

The industry's success—accomplished largely thanks to Giovan Battista Giorgini (picture) — is partly reflected in the export figures. Since 1951, sales of collections to U. S. buyers alone have amounted to about $5-million. And in the same period, exports of both men's and women's garments (including ready-to-wear) to the U. S. A. have climbed from $125,000 annually to $1.5-million.

Along with that. exports of Italian products connected with high fashion have soared. In some countries, indeed, Italian fashion means elegant knitwear, shoes, and leather accessories.

• **Feud**—As yet Italy's battle is more with itself than with Paris. Florence and Rome each covet the title of "fashion capital of Italy." On one side Giorgini, coordinator of the Palazzo Pitti extravaganza, leads the fight for Florence. On the other side is the Italian government, which privately hopes to make Rome the fashion center.

Giorgini's advantage is the way he puts all the new collections under one roof. The 150-odd visiting buyers (60% from the U. S. and West Germany) prefer that to the tiring race from one salon to another in Rome

As entrance fee, the buyers pay $100 for a seat along the models' runway in the chandelier-lit "sala bianca" inside the Palace. They also deposit $500 as a minimum guarantee of purchases.

The couturiers themselves prepare for the display like nervous impresarios. Financially, the showings are quite a strain: Total costs of a collection can easily amount to $100,000. Showmanship, of course, is the real trick. Before taking her collection to Florence, Simonetta was busy in Rome teaching models to cha cha. That way she could flash the "semi-fitted" silhouette of her clothes more effectively.

• **Postwar Phenomenon** — Italy has for long had its own designers with their private clientele, but the success of the industry is strictly a postwar development. Before the war, those Italian designs that did reach overseas buyers were usually labeled in Paris and sold as a French product.

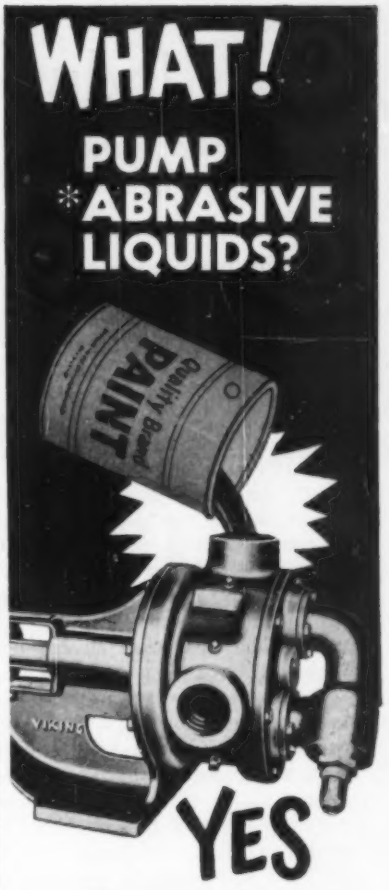
After World War II, some members of Rome's aristocracy decided they could design better than Paris (and sell cheaper), and organized their own ateliers in Rome. That angered Turin and Milan. Soon a neutral location, Florence, was picked for the showings. And one of Florence's sons, Giorgini, became stage manager.

Giorgini had both position and experience. Not a designer himself, he has his own export business of Italian antiques and handicrafts and has long had close ties with the U.S. as Italian buyer for I. Magnin, Tiffany's, and other top stores.

In February, 1951, Giorgini lured five U.S. buyers for a showing by nine dressmakers in his own Florentine villa. "The buyers were in Paris," he recalls, "and I told them it was just an overnight trip to Florence." They bought nearly all the 180-odd models.

In July, 1951, he held a second showing—before the Paris displays, "to prove we weren't copying French styles"—which 300 buyers attended.

Today, Giorgini has a profitable business—which he has developed in spite of the jealousies of designers, the government's championship of Rome, and attacks from the press. From his penthouse office overlooking the Arno he directs a staff of 32 buyers who scour Italy for ceramics, jewelry, and other high fashioned accessories. And he frankly states that the fashion show has enormously helped his own antiques and handicraft business.•



it's practical with the new

VIKING

Yes, you can pump paints, inks and other *abrasive liquids with double to triple pump life assured, when you install a new Viking 64124 pump. They're field-tested and proved! They're especially constructed, including ceramic bearings and mechanical seals, and suitable for *abrasive liquids from a minimum viscosity of 100 S. S. U. to the heaviest viscous types.

G.P.M. sizes 3 - 6 - 12 - 16 - 25 - 40
Write today, giving this information:

- Liquid pumped
- Viscosity of liquid (S.S.U.)
- Percentage and type of solid present in liquid
- Temperature of liquid
- Specific gravity
- Capacity of pump
- Suction lift or head
- Discharge pressure

Ask for bulletin, section SP-507

*Consult factory for recommendations for pumping abrasive liquids other than paints and inks.

VIKING PUMP CO.
Cedar Falls, Iowa, U.S.A.
In Canada, It's "ROTO-KING" Pumps
World Wide Sales and Service

Does Industrial Advertising Sell?

It is hard to prove how effectively. But the case for advertising remains strong.

An expert explains the role of advertising—how it contributes to sales efficiency.

DOES INDUSTRIAL ADVERTISING really sell goods? This is a question that many executives, their eyes on a rapidly expanding and modernizing world industry, ask themselves.

It is difficult, if not impossible, to answer the question with hard proof. And many businessmen will go on using the lack of proof to reinforce their disbelief in advertising. Others will continue to advertise half-heartedly, with little planning, and in the process convince themselves that advertising probably does not pay.

To find out what is presently known about industrial advertising, INTERNATIONAL MANAGEMENT went to a recognized authority. He is John C. Spurr, Director of Research for the McGraw-Hill Publishing Co. of the U. S. A., publishers of 39 business and technical periodicals. And though Spurr's findings over the period of a decade relate most directly to industrial and business advertising in the U. S. A., the principles involved can be applied to advertising everywhere—and to consumer selling as well as industrial products.

• **Skeptic**—Spurr is skeptical of broad, highly-generalized studies that try to prove the power of advertising by, say, relating a company's advertising expenditures to overall sales or competitive position. There are too many factors involved, says Spurr, for these studies to prove anything beyond the undoubted fact that advertising is one of the tools used by dynamic managements.

This in itself might be taken as an argument in favor of advertising. But it hardly is proof.

Spurr prefers to rely on specific case histories, and information gained from exhaustive research among publication readers themselves. Here, based on these studies, is Researcher Spurr's case for industrial advertising:

• **Role of Advertising**—Since it is difficult to measure the absolute effectiveness of industrial advertising Spurr devotes much of his work to what he calls the role of advertising—how it contributes to sales efficiency, rather than to what extent.

"When you study our huge collection of comments from magazine readers," Spurr says, "it becomes apparent that the company that does not advertise is at a serious competitive disadvantage." He cites five specific reasons why this is so:

—Advertising helps reach buying influences that are not readily available to salesmen. In one survey, Spurr found that 68% of 5,000 decision-making executives for 26 industrial products could not recall seeing salesmen from a company they would consider as a supplier.

U. S. industry figures show that industrial salesmen on the average are familiar with 3.6 men with buying influence in the companies they visit, and they make an average of 2.4 calls on each of these men in a year. A lot more than 3.6 men can get involved in buying decisions — not only purchasing men, but also men concerned with general administration, production, maintenance, design, power, engineering, research, marketing, and other areas. Spurr cites a typical plant, the 1350-employee plant of the American Blower Co. in Dearborn, Michigan: There are 118 men in this plant who may become involved when decisions to buy industrial products are made.

Spurr can cite many incidents of how advertising affects top management. A comment by a vice president of an automobile parts manufacturing company: "This ad [promoting synthetic rubber] suggests applications on our products. I tore out the page and sent it to the engineering design department and in a few weeks I will ask them what they did about it."

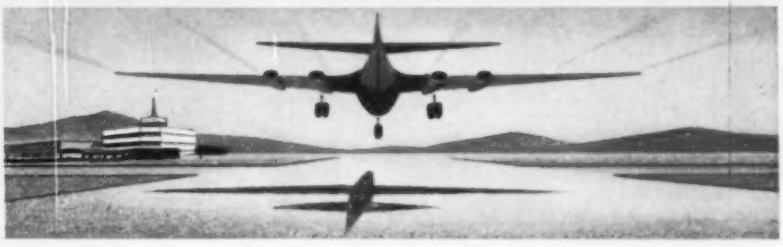
From a top manager in a metal processing company: "This ad gives me a reference point indicating what has been accomplished in similar circumstances at other locations. The technical details are the problem of our technical staff; but the language of the ad helps me frame intelligent questions."

—Advertisers are considered more often when a purchase is made. In other words, the company that advertises has less chance of being overlooked. "Just this morning," commented the owner of a yarn mill, "my son needed some sprocket chains; so he grabbed the current issue of a textile publication and looked through it." One advertisement, he noted, carried a picture of a similar chain, which "told us this company undoubtedly sold the type of chain we needed right away."

From the superintendent of a coal mine: "I stopped to read this ad because we are in the market for a crusher. I took the ad to my boss. It applies to us; we can get the idea of what the crusher does from the ad. We got in touch with the advertiser and they sent someone out."

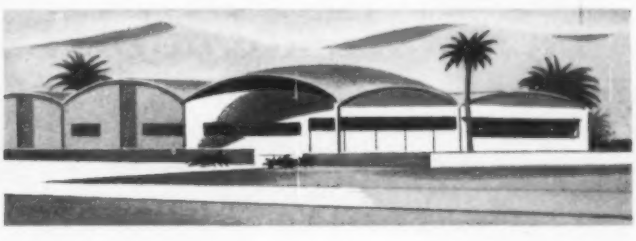
—Advertising paves the way for salesmen. The purchasing agent of a baking company commented: "We are becoming more and more interested in plastic tubes, so I sent for a handbook mentioned in an ad for them. I like to go through these catalogs before getting in touch with the salesmen." Thus, he was in a better position to discuss the problem with the salesman when he arrived.

In another case, the superintendent of a mill was looking for a special valve, but his local industrial supply house told him no such valve was available. He found the valve advertised in a business magazine and showed it to the supply house: "I know I could not



CEMENT MEANS PROSPERITY

Around the world—in countries large and small—complete cement plants, engineered and equipped by Allis-Chalmers, help build the foundation for rapid economic growth.



Plentiful Supplies of portland cement speed the building of prosperity. Cement creates roads, airports, water and sanitary systems. Cement erects dams and bridges. Cement builds houses, apartments, public buildings. *It makes jobs.*

Around the world, producers of cement know Allis-Chalmers as a single, reliable supplier of crushers, grinding mills, kilns, coolers, motors and controls, electric power equipment. *One source—one responsibility.*

Allis-Chalmers world-wide experience in engineering is also available for help in building a new plant, enlarging a present plant, or installing a single modern machine.

In all fields of economic development — mining, electric power, public works, manufacturing, construction, agriculture—Allis-Chalmers is equally prepared to assist a growing economy. For Allis-Chalmers means much more than machinery. It means many expert services in planning and engineering, offered with a sincere desire to help in the building of new prosperity.

• • •

Available in leading world currencies. Call upon your regional Allis-Chalmers representative for specific information, or address Allis-Chalmers International, Milwaukee 1, Wisconsin, U.S.A.

ALLIS-CHALMERS INTERNATIONAL
A Division of Allis-Chalmers Mfg. Co.

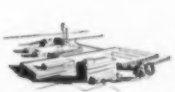
A-1174

MINING

ELECTRIC POWER

PUBLIC WORKS

CONSTRUCTION



MANUFACTURING

AGRICULTURE

When pressing Cottonseed...

or any oleaginous material...

EXPELLERS

INCREASE PRODUCTION... PRODUCE MORE OIL

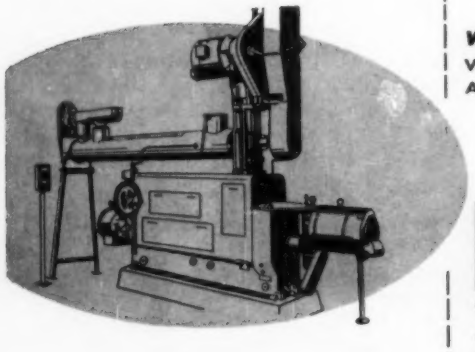
HOW DOES THE EXPELLER INCREASE PRODUCTION?

1. One ANDERSON EXPELLER does the work of two conventional presses—one machine can process the meats from 50 tons per day of cottonseed.

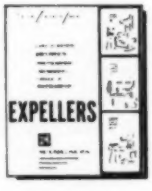
2. The cake will contain no more than 3% residual oil on a 41% protein basis.

HOW IS IT POSSIBLE TO LOWER COSTS?

1. One machine does the work of two reducing capital investment 50%... Operating, maintenance and supervision costs are reduced proportionately.



WHY WAIT...
Write today for your complete Anderson Expeller Brochure.



THE V. D. ANDERSON COMPANY
division of International Basic Economy Corporation
1962 WEST 96TH STREET • CLEVELAND 2, OHIO, U.S.A.

**Trade Mark Registered in Foreign and U.S. Patent Offices.*

ONLY ANDERSON MAKES EXPELLERS*

have convinced them without the advertisement."

From the production manager of a food plant: "We are interested in the possible use of stainless steel belting for cooling mainly because it might be more sanitary than the belt we have. I read this ad because it is about stainless steel belting. It applies to my work. The ad was brought to the attention of our president and vice president. And I have talked to a local representative of the company as a result."

—Advertising tells customers of other products a company makes. The exploration chief for a mineral development company, after seeing an advertisement for a measuring instrument, commented: "We have one of their instruments, but not this one. I am going to find out more about it."

A design engineer commented on an advertisement for a type of U-cup packing: "This ad was routed to the research department and right now it is on my desk. I have been appointed to call their representative to come in and discuss how these cup packings can be applied here."

—Advertisements can keep customers sold. The user of a certain company's porcelain thread guides commented: "I always note their ads because I want to gradually add more of them. I have found, through use, that all they say is true."

From a copper company executive: "This ad appealed to me because I have had close contact with the company. We are putting in $2-million worth of their equipment in Peru; and I watch what they are turning out. I would not say that we have bought equipment because of their advertising, but it has had a definite influence. They are not the only company selling this equipment. By seeing their advertising constantly we kept them in mind and so they were invited to bid when we needed the equipment."

Next month, Part II of this article will explore the techniques used to measure the effectiveness of industrial advertising.

This amazing new OLIVER LABEL IMPRINTER CUT-STACKER solves many labeling problems

- **Reduces label inventory costs**
- **Eliminates label waste**
- **Smart, custom design labels**

A "blank" roll-type label is imprinted with title and other data. Imprint items can be changed in few seconds.

This new Oliver machine supplies heat-sealing loose, cut and stacked, diecut labels ready for hand application. Takes rolls of partly printed labels and imprints them with essential information. The imprints can be changed in a few seconds. It them neatly cuts and stacks the labels—up to 140 a minute. An electric counter stops unit after predetermined number of labels is cut. This machine soon pays for itself.

Or if you have a special labeling problem, let Oliver engineers help you solve it. Get the facts.

OLIVER MACHINERY COMPANY, GRAND RAPIDS 2, MICHIGAN

Customized Vehicles

Space-age machines and material handling schedules *demand* specialized vehicles! If your equipment needs a special kind of mobility, we can help you—at highly favorable prices!

To date, Crane Carrier Industries have designed and built over 300 different types of vehicles for power cranes and shovels, concrete mixers, drill rigs, oil well servicing rigs, and dozens of other machines.

These vehicles are now manufactured in the U.S., Canada, The Netherlands, and Australia to better serve customers all over the globe.

Licensee assembly franchises are available in many parts of the world. Complete design and engineering service, packaged component shipments provided for local production. Write for complete information.

TELL US your needs. Consultation costs you nothing, and might provide a profitable answer to your problems. Write Crane Carrier Industries, Export Division, Toronto, Canada.

CRANE CARRIER INDUSTRIES

Export Division
Toronto, Canada

CLEARS ENTIRE BLAST AREA IN MINUTES!

TROJAN
YALE & TOWNE

Trojan 404 Handles Shot Rock on Busy State Road — Keeps Traffic on the Move

After each blast, move in fast — clear area — move out — keep traffic moving . . . The big 4 yard Trojan 404 is right at home when confronted with such a tight operating pattern . . . Working speed, along with strength and ability to handle heavy, heaped loads of shot rock, established the Trojan 404 as the most valuable piece of equipment on the job . . . The main objective was accomplished — no traffic tie-ups! This is another example of Trojan's proven job performance under exacting operating conditions . . . Ask your local distributor to demonstrate Trojan job ability.

EXPORT DEPT., TROJAN DIV., THE YALE & TOWNE MANUFACTURING CO., CHRYSLER BLDG., NEW YORK, N. Y., U. S. A.

Finance Finds a Way . . .

. . . An Argentina Tunnel

A TUNNEL under the Parana River in Argentina—connecting the cities of Santa Fe and Parana—has long been a dream of the provincial governments concerned. The Argentine federal government expressed interest in proposed plans, but said it could not finance the project.

This set the stage for a unique financing scheme. A U. S. construction man, Harry Horowitz of New York's Moore Lopier Corp., was asked to raise the capital and form a consortium to do the work. A consortium was soon formed.

• **Source of Funds**—The consortium then found financing from a source that is steadily growing in importance—"institutional" funds from the American capital market. The principals will not reveal the exact source. But it probably involves either insurance companies, corporate pension funds, or the increasingly venturesome pension funds of U. S. trade-unions.

An unusual feature of the financing scheme: Plans call for the consortium to collect tolls on tunnel traffic—and keep them for 30 years. The loan money would remain on deposit in Argentina for 20 years; at that time, the difference between the deposit and unamortized portion of the credit would be returned.

Another U. S. consortium has agreed to finance 80% of a $50-million public works program in Santa Fe province, with capital supplied by the same "institutional source." The provincial government will pay 5.75% on quarterly notes, starting in 1963; the interest rate on late payments will be 10%.

. . . Indian Paper Mill

INDIAN INDUSTRIES involved in government-encouraged projects—the manufacture of paper, for example—are finding a variety of capital sources to finance expansion.

Star Paper Mills of Calcutta has a $7-million expansion under way, with the help of a $2.1-million loan from the government-owned Industrial Finance Corp. In addition, a public preferred stock issue of $1.5-million is exempt from income tax and carries an annual interest of 7%. Equipment valued at $3.9-million is being purchased on deferred-payment credits from suppliers in West Germany, Sweden, and Britain. Equipment worth $420,000 will be paid for in cash—to U. S. suppliers.

A new paper mill in Bihar—Ashok Paper Mills—is buying equipment from the U. S. through an Export-Import Bank loan, from France through export credits. The French suppliers are reportedly investing capital of $630,000.

. . . Dutch Grocery Bonds

ABOUT FIVE YEARS AGO an enterprising grocery chain in the Netherlands, Albert Heyn N.V. of Zaandam, came upon a unique scheme to finance modernization and increase sales at the same time.

The results to date have been encouraging. Here is the plan:

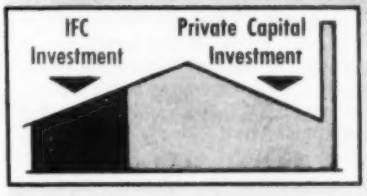
Albert Heyn issues 50-guilder "customer" bonds that bear a fixed 4% interest plus a share of the firm's profits (last year, total payment on the bonds amounted to 7½%). Customers save for the bonds by buying bond stamps—up to 10% worth of each purchase.

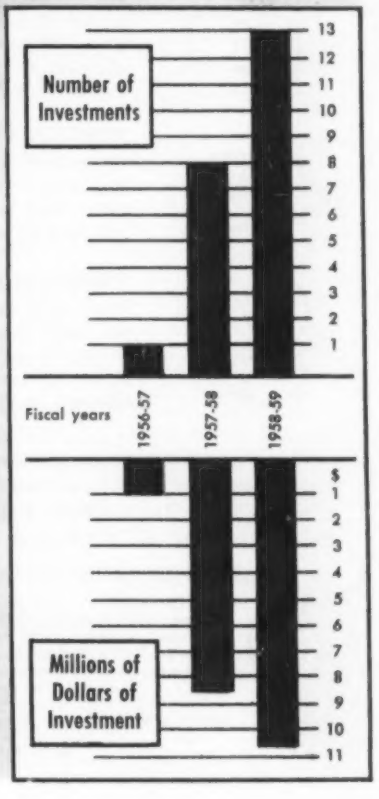
• **Bonus**—The store adds the fiftieth guilder to each completed book of bond stamps, which in effect gives customers a 2% discount on the bonds; at his option, a customer can trade 49 guilders worth of bond stamps for 50 guilders. The bonds are listed on the Amsterdam exchange at a current price of around 129%.

With the capital thus obtained—some 25-million guilders (roughly $6.6-million) to date—Albert Heyn is rebuilding its old shops into self-service stores and supermarkets. The total cost of financing, including administrative costs, is thus in the neighborhood of 8½% to 9%. In addition, there are tax benefits because the interest paid is considered as debt.

The contribution of the bonds as a sales stimulant is impossible to measure in guilders, but there is no doubt that the scheme does bind customers to the company's stores.

Three Years of IFC Investment

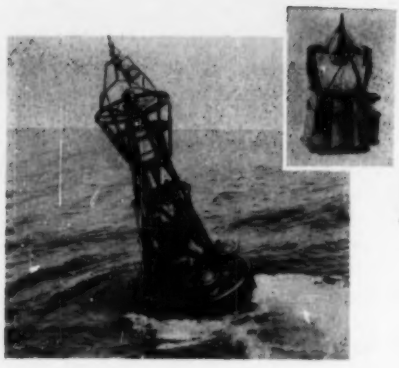




What do these companies have in common: Brazil's Champion Celulose, S.A., and Steel Corp. of Pakistan, Ltd.?

They are two of the 22 companies that have been invested in by the International Finance Corp., the World Bank affiliate that is trying to prove that, with encouragement, more private capital can flow into industry in undeveloped areas. All of them share good management, and a balanced capital structure.

Since its standards are high, IFC equity participation in itself attracts additional capital (chart above). And to prove its point, IFC expects to make a healthy profit. Then as each investment pays off, IFC will sell its holdings and seek new opportunities.

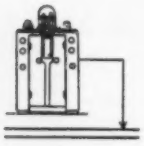


Where Performance Counts

WALLACE & TIERNAN EQUIPMENT IS USED

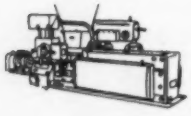
AIDS TO NAVIGATION

A W&T Buoy equipped with an electrically powered beacon, automatic lamp changer, flasher unit, and radio control equipment is shown above in service at a harbor entrance. Wallace & Tiernan equipment was chosen because of its dependability and economical operation. These qualities are typical of all W&T's navigational aids which include such items as lamp changers, flasher mechanisms, signal timers, fog horns, aircraft flasher units, and other related apparatus.



CHLORINATION

Equipment includes chlorinators of both the water and mechanical diaphragm types in all capacities, hypochlorinators, and many other auxiliary and accessory items designed for use in the treatment of water for sanitation as well as for numerous industrial purposes.



PROCESS FLOW CONTROL

Equipment includes chemical solution feeders, gravimetric and volumetric dry feeders, and gravimetric meters for use in the chemical, grain, and food processing industries.

PRESSURE SENSITIVE INSTRUMENTS

Equipment includes a complete line of aneroid and mercurial pressure sensitive instruments, such as altimeters, barometers, and manometers designed for use in industrial testing as well as for research purposes.

Other quality Wallace & Tiernan products and services used throughout the world are listed below. For further information send for list number F-105 of available free technical publications on all Wallace & Tiernan products.

Ammonia Control Apparatus — Cathodic Protection Systems — Chemical Feeders — Chlorinators — Decay Control Process for Produce — Electric Marine Beacons — Flour Processing Chemicals — Pharmaceuticals — Precision Instruments

WALLACE & TIERNAN INCORPORATED

25 MAIN STREET, BELLEVILLE 9, NEW JERSEY U.S.A.

REPRESENTED IN MOST COUNTRIES

F-105

U.S. Stocks Shunned Abroad

Foreign funds have turned from Wall St. to high-yield stocks in other areas.

INVESTORS and businessmen in all countries keep a cautious eye on the U.S. stock market. What they have been seeing in recent weeks has not inspired great confidence that Wall Street will rebound vigorously from its summer and early fall doldrums, *Business Week* reports after a survey of leading New Yorker brokers who handle accounts for investors overseas.

The wariness of "smart money" investors pointed out by INTERNATIONAL MANAGEMENT DIGEST three months ago (IMD, Aug., p32) persists. Foreign investors in Wall Street are moving cautiously. They are slowly trimming down their investment in U.S. corporate stocks, and relying more heavily on short-term U.S. Government bonds and high-yielding securities of other countries.

• *No Panic*—Yet foreign investors still have enough confidence in Wall Street—and the American economy—not to make major reductions in their portfolios, the *Business Week* survey indicated. Brokers reported that while foreign buyers were disturbed by September's fall in stock prices, they did not react as violently as did U.S. investors.

The foreigners seem to have refrained from the selling spree that in 1958 caught them in a short position when the market suddenly started to move upward. Foreign sentiment now seems to agree that the U.S. economy will continue to be active, and that stock prices will get in stride with the pace of business—once uncertainties of cold war and steel strike are settled.

American investors watch the flow of foreign money with unusual interest, and often follow its example. The feeling is that money from abroad owes no allegiance to any country, but that it tends to move into any channel where a profit can be made.

Foreign money has not always been right in anticipating the U.S.

market, but it has proven more right than wrong over the years. It had a bad year in 1958, when a number of big British and Scottish investment groups ignored U.S. equities and sold on balance. Stocks had moved already dramatically upward before they began to buy early in 1959.

• **Stock Speculation**—The influence of foreign buying on the major U.S. stock groups is negligible, brokers report. Outsiders do not hold big blocks of stocks, and they do not make dramatic shifts as giant U.S. institutions often do. But they have been playing a big role in stock speculation, and in the movement of individual issues.

Says one broker: "I'm sure money from abroad is pushing up Studebaker-Packard." Another reports: "We get big buy orders from abroad every time a stock takes off —Fairchild Camera and American Motors are cases in point."

European and Latin American investors always have focused on individual issues, but there seems to be a new trend emerging. In the past, they showed interest only in well-known railroads and industrial shares. Today they are buying shares of less prominent companies in a wide variety of industries.

Their interest in stocks that are moving quickly is only natural. Investors in most countries are not bothered by the capital-gains taxes that hampers the speculation of U.S. traders. They can move in and out of stocks, take losses, accept modest gains, continually shift their funds into money-making channels.

In many countries, there are also favorable margin rules. In Switzerland, for example, well-known buyers only have to put up about 30% cash for their purchases.

• **Outlook**—Despite the slow trading, brokers believe that European trust accounts have a long-range interest in U.S. stocks. When the time is right, they will begin buying again.

The Germans, one broker notes, only came into the New York market in a big way this year. They began buying heavily in early months, then reduced their purchases to a trickle. "But they've got the capital now," he says, "and there are signs that they are just waiting to come back in."●

Same hours, same manpower, yet by changing loaders

AUSTRALIAN QUARRY TRIPLES PRODUCTION

With the same *number* of loading units, and virtually the same man-hours, V. P. Keane Limited, prominent Melbourne quarry, has *tripled* production (and sales) over the past few years.

An important factor in this accomplishment has been the Michigan Tractor Shovel brought in to replace another, less mobile loading unit.

Loads 95 trucks in 6 hours

Accurate records show the 1¼ cubic yard Michigan regularly loads 95 to 100 six-yard trucks every 6-hour working day. Output averages 600 cubic yards per shift—100 cubic yards per hour.

Truckers make more money

This record has been established with only minor changes in methods. Trucks for example, still are loaded in the order in which they arrive in the pit. Formerly, this practice caused frequent delays, often 20 to 40 minutes, while the old-style loader *crawled* between stockpiles. Now, *even on busiest days*, the Michigan works so fast no truck waits longer than 2 to 10 minutes from time it drives into the quarry until it leaves, fully loaded. Company officials say this 10 to 30 minute saving often enables each truck to deliver *another two to four loads per day*—for a substantial extra profit.

Fast as trucks beween stockpiles

Three major factors combine to produce this time saving. First, the mobile Michigan moves from stockpile to stockpileas fast as the trucks. Second, it rapidly loads all sizes of stone. Third, its power-shift transmission, power steer, and torque converter lessen fatigue so operator works more efficiently all day long.

Also does such extra "extra jobs" as pit cleanup, bank loading

Speed helps out on extra jobs, too. Several times a day, the Michigan clears the quarry floor (this eliminates need for special tractor). Sometimes, it loads directly from the bank. And it often levels and cleans around the stone stockpiles.

This versatility can, we believe, be a major factor in reducing your costs too. For all the facts, contact your local Michigan Distributor. Choose the Michigan Tractor Shovel model which best fits your needs. Eight sizes, 6/10, 1, 1¼, 1¾, 2, 2¾, 4, and 6 cubic yard capacities, now available.

CLARK EQUIPMENT INTERNATIONAL, C. A.

Apartado 2717, Havana, Cuba
Cable—Clarintca, New York

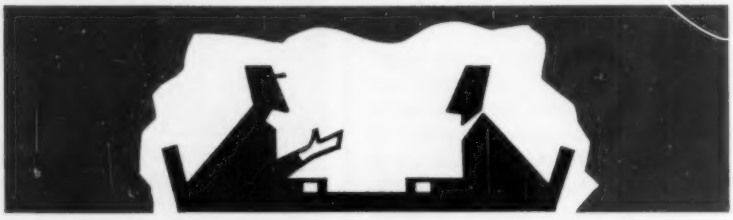
CLARK® EQUIPMENT

TRACTOR SHOVELS • DOZERS • LOGGERS
SCRAPERS • EXCAVATOR CRANES

Manufactured in Australia, Belgium, England, France, Germany and U. S. A.

Group Incentives: A Major Challenge to

Industry cannot avoid the "incentive problem" today. Here is an approach that deserves careful study by managers — and by workers.



"ON BALANCE, it is difficult to recommend a piecework incentive system for many companies," declares Professor Frances Torbert, writing in the current *Harvard Business Review*. "If it solves problems, it tends to solve them in the short run only to multiply them in the long run." The individual incentive implicit in piecework "tends to destroy the will to cooperate," says Prof. Torbert, and "group incentive programs may be the better alternative."

With this mild statement, Prof. Torbert, a teacher of management in California, plunges into one of the most controversial and critical aspects of modern industrial relations.

It is controversial because attitudes toward incentives are highly colored by the self interest of trade unions, industrialists, even governments—and because incentive technique varies all the way from the Soviet Worker-Heroes to the "happy-family" profit shares of a small British job-shop.

And finding the right incentive system is becoming more critical in the face of increasing industrialization, larger, more highly-automated factories, and the rising tide of wage and profit-sharing demands by trade unions around the world (IMD—Oct., p11).

I. Variety of Plans

There is plenty of disagreement with Prof. Torbert, from executives as well as from the trade unions who often distrust any kind of incentive. A recent survey of factory managers in the U.S.A. (IMD —August) showed strong defense of individual incentives. And some companies have found that individual incentives do not have to be abandoned when group incentives are installed. They can be made to work together.

Professor Torbert concedes that individual incentives may continue in perhaps 40% of present applications. But their usefulness, she says, is being reduced by automation, the increased percentage of indirect labor (inspectors, clerks, specialists) and the variety of its tasks, the blurring of the distinction between direct and indirect work.

• **Variety**—There are a variety of group incentive plans. Straight profit-sharing schemes are perhaps the best known in the world, and companies that use them usually believe in them strongly. One disadvantage, however, is that profits often are made from operations and decisions that do not involve the workforce.

There are also plans that share cost savings, based on some sort of standard cost system. But these often bog down when wages rise faster than prices. And the only practical bonus system for some operations—cement and mining, for example—may be on a basis of physical output.

Of greatest current interest, however, are two plans that are based on productivity measures—the Scanlon Plan and the Rucker Plan. Both depend not only on monetary incentives, but also on a system of productivity committees composed of management and workers.

This is the first thing that should be known about these plans: They call for employee participation. Indeed, the Scanlon Plan is a "philosophy of organization. It is not a program in the usual sense—it is a way of life," in the words of one writer. But equally important, neither of the plans asks management to give up any of its "rights."

• **Few Barriers**—To date, Professor Torbert says, only a relatively few American companies have adopted these group incentive schemes. But from a technological point of view, Torbert sees few barriers to their greater use. The record shows that even quite large companies, and companies with complex production and marketing operations, can adopt them. If there is a problem, it involves people, not technology.

To make group incentives work, Torbert says that management must be reasonably competent, and be willing to become more so. Management must be as honest as it is competent. Company employees—and union leaders—must be above average in competence and integrity. And ideally, the concern should already have a management-training program that emphasizes human-relations problems.

II. The Scanlon Plan

The Scanlon Plan is unique in that it was originally negotiated between a strong labor union and a strong management, and most of its applications have been in similar situations. The man behind the plan, the late Joseph Scanlon, had been a cost accountant and professional boxer, a steel-mill worker who became his local-union president, then a trade union research director (the United Steelworkers of America), and finally a lecturer at the Massachusetts Institute of Technology.

Scanlon's viewpoint was that

profits as such are too remote to be real to a workman; union members, he said, often suspect that companies keep two sets of books—one to show the union, another for the stockholders. But productivity (output per man hour) is something a workman can understand and measure.

• **Incentive Base**—The incentive base in the Scanlon plan is the ratio of the cost of all labor to the value of goods shipped. There are no rigid formulas that apply to all firms. The formula is based on the historical relationship between the labor cost and the value of production.

The gains made through improvements in productivity are then distributed: The company gets 25%; the workers, 75%. Bonuses are paid monthly when labor costs are below the normal ratio.

Before the 75-25 split is made, however, a quarter of the bonus pool is set aside in a reserve fund; deficits are charged against this fund. At the end of the year, an extra payment is made from the reserve fund, depending on its condition.

Suppose that the union and management agree on a normal ratio of 40%—that is, 40% of the sales value of production, plus or minus inventory changes, is the labor cost. If shipments plus inventory increases for the month are $1-million and labor costs are $370,000, then $30,000—the difference between actual labor cost and the agreed-on ratio—would become available under the plan.

• **Cooperation** — The company's 25% cut of the $30,000 gives it a cushion to absorb minor changes in conditions that affect the normal ratio. It is essential, however, for the norm to change when anything substantially alters the ratio of costs to sales value—price or wage changes, major purchases of labor-saving equipment, etc. There is usually a "memorandum of understanding" between the union and management that lists the grounds for changing the ratio.

Since goodwill is essential to such changes, the Scanlon Plan is not likely to work where there is a history of union-management warfare over pay issues, or where bargaining is always "pattern-setting" for an entire industry or nation.

• **Production Committee** — In Scanlon companies, a production committee system replaces the conventional suggestion system, if there is one. In each department, employees elect representatives to meet with the supervisors to study better work methods. These meetings are held once or twice a month, and are attended by all employees who have ideas concerning methods, materials, machines, scrap control, etc. Minutes are kept of the meetings.

Within his "area of freedom," a supervisor can adopt suggestions immediately. If a suggestion involves a major expense or other departments, it goes to a higher-level screening committee.

The screening committee, in effect, is the governing body of the Scanlon plan. Elected employees sit on the committee with representatives of top management. But it should be noted that management has an unqualified veto; employees can act as advocates, but there is no voting on suggestions. This committee also announces production and costs for the previous month, and the resulting bonus, if any.

Discussions are notoriously free in Scanlon committee meetings. One observer reports: "Sometimes the workers throw the book at management; sometimes management points out where the shop has fallen down. Engineers argue against machine-tool operators; foremen attack the engineers for unrealistic blueprints."

And not only do employees show new interest in their company's success, they exert pressure on management to manage better; and they exert pressure on employees who do not respond to the program.

III. The Rucker Plan

Like the Scanlon Plan, the Rucker "Share of Production" Plan is based on monetary values, rather than physical output. This plan was devised by Allen W. Rucker, a management consultant with The Eddy-Rucker-Nickels Co. (Cambridge, Massachusetts).

The Rucker plan is based on net production values created by the company—the value added by manufacturing. In brief, this is the value that remains after all outside purchases—raw materials, supplies, power, etc.—are deducted from the sales value of the product. This value can be understandable, believable, and acceptable to workers.

A historical relationship is established between total earnings (including fringe benefits) of hourly-rated employees and the net production values created by the company. If major changes in products or processes occur, the plan is re-engineered.

• **Share Basis**—Under this plan, company and workers share any increases in "value added by manufacture" that grow out of their joint efforts. For every 1% increase in production value, the plan calls for a 1% increase in total payroll credit for eligible employees.

Many companies have companion plans, one for all hourly-rated employees, both direct and indirect, and another for management personnel. Some companies use the Rucker Plan in conjunction with a direct incentive system; in other words, they pay base wages, direct incentives, and group incentives.

Group bonuses are paid monthly, and as with the Scanlon Plan, 25% of the credit is usually carried into a reserve account. If production in any month falls below the standard ratio, the deficit is debited to the reserve account. At the end of the year, the net balance is distributed to the workers.

Results from the Rucker plan vary from company to company, of course. A typical case history: The Pohlman Foundry Co. a job shop of Buffalo, New York, installed a Rucker plan in 1950. Output per manhour has increased by 18%; bad castings and rejects have gone down 47%; customer returns have decreased from 3% to less than 1%.

Payments from the Rucker "share of production" have raised earnings of employees 26% above the 1950 rate; this is in addition to an increase of 31.3% in the base earnings rate, and a 24.7% increase from direct incentive payments—a total wage increase of 82% over 1950.

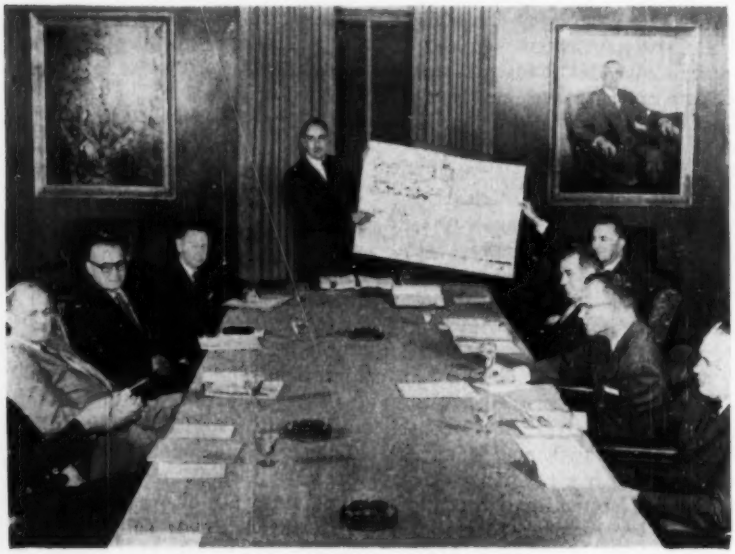
• **Long-Term Trend**—Rucker has

shown that, for the United States as a whole, factory workers' pay has been proportionate to production values for 50 years. The relationship has prevailed to within ±1.663%. Labor's average share has been 39.395%; management's, 60.605%.

The ratios have scarcely been affected by depressions, booms, wars, and the introduction of labor-saving machinery. True, labor time has been reduced about 70% since 1914, Rucker notes, but wages have made up about the same percentage of value added by manufacture.

• **Committees**—In Rucker companies, employee committees are often set up somewhat differently than in Scanlon companies. In most companies, a "share of production" committee is established, consisting of worker representatives from every major department, plus one third to one half as many shop supervisors. There are usually co-chairmen—a top executive and the current union president or elected representative. The length of membership varies, from three months in some firms, a year in others.

In the most successful Rucker installations, employee members of the committees take an aggressive part in the discussions. As with the Scanlon plan, management must give them a free hand to criticize, suggest, and contribute ideas. ●



Junior Board of Directors Is Senior Board's Alter Ego

"OUR JUNIOR BOARD of Directors strengthens our span of management," explains A. M. Ghormley, president of U. S. A.'s Carnation Milk Co. "It is our Senior Board's alter ego," he told *Food Engineering* magazine.

As a company grows, its management problems increase. Maintaining a chain of command requires that an organization be divided and subdivided. Thus, Carnation's Junior Board concentrates on objectives that cut through organization lines.

• **Membership** — The "JB's" 12 members are chosen from a cross-section of interests and responsibilities — about 50 Carnation executives are eligible. Each member sits for three years, which gives him an intimate view of company operations and objectives, thus training him for higher responsibility. Annual elections replace 4 members. There are only two officers—a chairman and permanent secretary. Regular bi-monthly meetings are held; but special sessions can be called when necessary.

• **Major Objective** — Acting on assignments from the Senior Board, the "JB" investigates new management techniques and resolves organizational problems occurring between departments. These activities are the responsibility of committees. If outside help is needed, it can be secured on approval of the Executive Committee. On completion of a project, a report is given to the full Junior Board for approval or rejection. If the committee approves, the recommended project is put before President Ghormley. On his acceptance, it is placed on the Executive Committee's agenda for final action. Here are some of the projects the "JB" has worked on:

—**Work Simplification.** The JB found that a company does not buy a "packaged" program and apply it to any type of business. Rather it must be tailored to a specific situation. A program suitable for Carnation was worked out.

—**Waste Reduction.** The Board decided that a cartoon character could be used to illustrate booklets — with humor and accuracy — to show how workers could cooperate in reducing costs. The result: in one area alone, the telephone bill was reduced by $7,000 over a 6-month period.

—**Operation Shakedown.** Some plant managers balked at disposing of obsolete equipment. A general appraisal of equipment was requested, along with a drive to dispose of pieces that would not be used. The result: Storage-space congestion was relieved.

—**New Products**—Half the members sit on a permanent new-products committee. This committee has developed a number of new products now being marketed, and it constantly has others under consideration.

—**Automotive Program.** After a three year study of the company's transportation fleet, the "JB" proved that savings could be gained by centralizing the buying and maintenance of automobiles and trucks.

The JB has worked on several other programs to promote close contact with employees. Their "Retirement Policy" explains the company's pension plan, "Getting Acquainted" informs new employees of general company policies, and "Moving Policy" pertains to expense allowances for employees who are transferred to other plants. (*Food Engineering, June, p* 44)

SINCE 1856
HUMBOLDT
Mining equipment, Ore dressing plants, Cement factories, Non-ferrous metal smelting plants, Coal washeries, steel construction, Structural steelwork, Steel bridge construction
SINCE 1864
DEUTZ
Diesel, Otto-cycle, and gas engines two-stroke and four-stroke from 3 to 3,000 HP, watercooled or aircooled for any application, diesel tractor diesel locomotives, gas producer plants
SINCE 1864
MAGIRUS
Trucks and buses powered by aircooled DEUTZ diesel engines, utility vehicles, fire ladders, fire engines, tank trucks, two-wheel ladders, fire-fighting appliances
KLÖCKNER-HUMBOLDT-DEUTZ AG · KÖLN
GERMANY

"158 Agencies in 123 Countries"

A Pioneer in World Buying

ARAMCO OVERSEAS CO. has a big responsibility. With headquarters in The Hague, it is the subsidiary of the Arabian American Oil Co. charged with buying supplies in the eastern hemisphere for Aramco's huge operation in Saudi Arabia.

Not only must it meet industrial requirements, but also buy many necessities of life for the people who work in Saudi Arabia. It spends some $40-million a year for equipment and supplies. For example, here's a sample of Aramco's shopping list:

From the United Kingdom—chemicals, tubular goods, safety toe shoes, shortening; Germany—steel buildings, diesel engines; Holland—communication equipment, vegetables; France—steel tanks, boilers, drilling equipment; Italy—heat exchangers, turbines, olive oil; Australia—meat, food products; Lebanon—fruits, vegetables, eggs; Belgium—vehicles, cement; Denmark—bacon, milk, butter; Switzerland—turbines; Jordan—tubular goods; Sweden—building materials.

Jack Martin, who recently was named manager of materials supply and traffic at Dhahran, told *Purchasing Week:*

"Our main problem is to find a supplier who has what we want. Everything we buy must be according to specifications which guarantee a high safety standard. And we also aim for a high degree of standardization."

• **International Basis**—In some respects, world-wide buying does not create the problems you might expect. There are few difficulties with language because most European businessmen have been operating on an international basis for years. Specifications in different weight standards are not a special problem either. The entire Aramco organization uses U. S. nomenclature, with the actual user deciding whether European descriptions would fit U. S. standards. Contracts are awarded on the basis of best bid, backed up by required delivery date and quality.

Karl Beekhuis, president of the A.O.C., comments: "Contrary to the concept some people have, there is no country we buy in where prices consistently represent bargains. For good quality, we generally pay as much in one area as in another.

"Labor is cheaper in Europe and even cheaper in some Eastern countries, which is an advantage where fabrication is involved. But American mass-production techniques have overcome lower cost advantages in other areas."

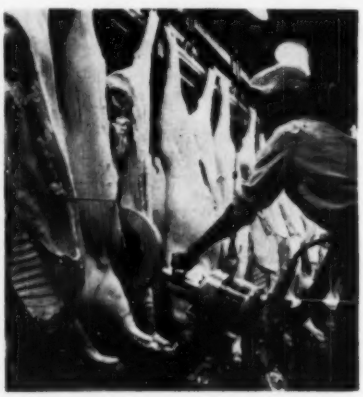
The requirements of 17,000 employees and 1-million plus barrels a day of oil production call for many stock items. But Aramco recently managed to cut the number of items requisitioned from 204,000 to 150,000.

A.O.S.'s prime problem: rigid delivery schedules. With few regular sailings to the Persian Gulf, scheduling is extremely critical. The systematic arrival of materials in Arabia is just as important. In many cases the material has to be delivered at a precise time and location to meet operating schedules.

Because of the long lead time there is a large inventory of equipment and supplies in Arabia. At the end of 1958, $39-million worth of equipment was spread over 100 acres of desert storage. Another $6-million worth was in transit.

• **Local Buying**—Purchasing for the Saudi Arab operations is easing as the local economy expands at a rate parallel to Aramco's. Local distributors now furnish clothing, cars, trucks, buses and such items as cement blocks and industrial gases. Purchases from local suppliers have recently been running to about $500,000 a month. ●

Automation Fund for Axed Workers



THE MEAT-PACKING INDUSTRY, along with many others, has been seriously concerned over the impact that mechanized processes and equipment—such as the electric cutter above—have on jobs.

In September, Armour & Co., a U. S. packer, and two major labor unions, the United Packinghouse Workers and the Amalgamated Meat Cutters & Butchers Workmen, agreed to try "a substantially new approach to solving the problems that arise from automation." The key provision of their new labor contract is an "automation fund," which will be used to cushion the impact of redundancy.

• **Negotiations**—When contract negotiations got under way this year, the union's research department stated that in 1955 nearly 200,000 workers were employed in the U. S. meat-packing industry; today, there are less than 164,000.

The unions demanded "job security" provisions—a shorter work week, a guaranteed wage. According to them, distress and hardship were common in packing centers.

• **Armour's Answer**—Since none of the major packers were willing to go along with the costly union proposals, strike threats began building up. It was then that Armour suggested a two-year "automation fund," financed at a cost of one cent for every hundredweight of meat products shipped; the fund would have a limit of $500,000.

After some hesitation and considerable debate, the unions accepted. The fund will not be used to increase severance pay benefits. In specific, it will be used to:

—Study the problems arising from automation, though a committee of nine—four members from management, four from the unions, and an impartial chairman.

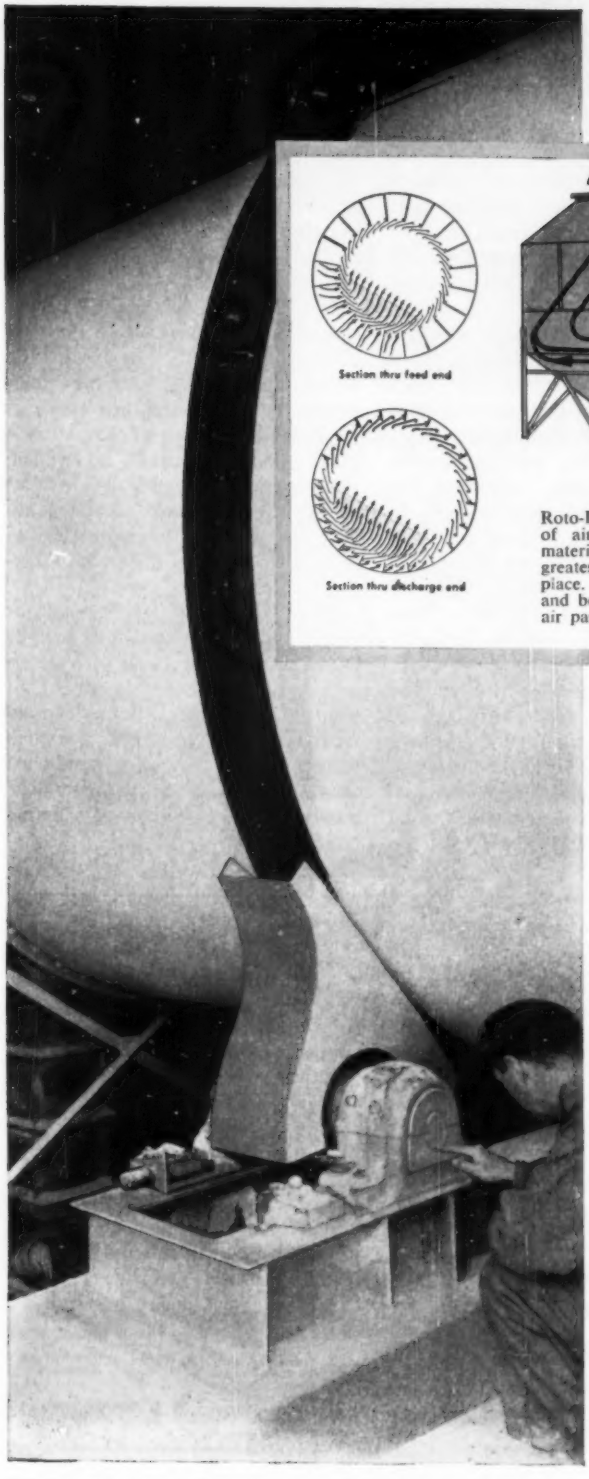
—Develop solutions.

—Promote employment opportunities for affected workers.

• **Sets Pattern**—After the unions signed with Armour—the contract also included a rise in pay—they placed the pattern before other packers. Seven settled on the same terms. Two others refused, offering more in pay in lieu of the fund. (*Business Week, Sept.* 19, *p*56)

Boost capacity without overheating with a

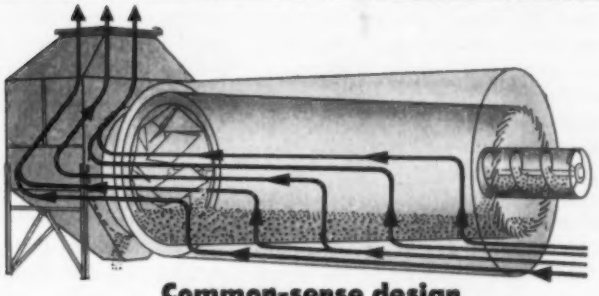
LINK-BELT Roto-Louvre dryer



Provides uniform moisture reduction in 50% less space... with minimum wear to parts

Section thru feed end

Section thru discharge end



Common-sense design assures effective heat transfer

Roto-Louvre has largest volume of air penetrating thin bed of material near feed end, where greatest evaporation must take place. As material moves forward and bed becomes thicker, smaller air passages reduce volume of air passing through bed, preventing overheating. Precise control of input air temperature, exhaust and conditions of material travel assures maximum heat transfer per cubic foot of air.

GYPSUM LIME & Alabastine Ltd. utilizes a Link-Belt Roto-Louvre to dry 20 tons of gypsum rock per hour without damaging this heat-sensitive material. Moisture content is uniformly reduced from over 5% to less than 1%.

The Link-Belt Roto-Louvre is a highly effective machine that may be profitably used for drying, drying-cooling and cooling of a wide range of chemical and mineral products. Dry, heated air—introduced through ever-changing channels—reaches the entire surface of every particle. Stratification and segregation—resulting in an irregular, overdried or underdried product—are prevented. In addition, compact design with a minimum of moving parts cuts floor space and extends service life.

For a complete report on Roto-Louvre's remarkable efficiency, write your Link-Belt representative for Book 2511. Or write us direct.

LINK-BELT

DRYERS • COOLERS • ROASTERS

LINK-BELT COMPANY: Engineers • Manufacturers • Exporters of Machinery for Handling Materials and Transmitting Power • Established 1875.
EXPORT DIVISION: Dept. 1159-IMD, 233 Broadway, New York 7, U.S.A., Cable Address: Linkbelt—New York • Australia, Marrickville (Sydney) • Brazil, Sao Paulo • Canada, Scarboro (Toronto) • South Africa, Springs • Representatives Throughout the World. 14,672-E

Competitive Intelligence Is Part of Long-Range Planning

"COMPETITIVE INTELLIGENCE should play a significant role in the decision-making process." This is the conclusion of a group of Harvard University graduate students who picked this controversial subject as their special project.

Their conclusion was reached after interviewing over 100 U. S. executives, and the results have now been published in book form: *Competitive Intelligence: Information, Espionage, and Decision-Making* (C. I. Associates, Watertown, Massachusetts, $10).

Competitive intelligence is really an aspect of forward planning, the students report, and an executive or committee should be delegated to coordinate information gathering.

• **Sources**—The greatest amount of information, according to the survey, comes from personal contacts of company personnel. The salesman is the leading gatherer of business information, especially on prices and marketing strategy, and his customers are his best source of information. Executives and research personnel also obtain information through conversations and convention-going.

Business publications are a major source of information for many companies, the students discovered. But they say that many companies do not make full use of published sources—newspaper reports, trade and government statistics, even annual reports.

• **Controversial Methods** — Some companies, it appears, hire personnel from competitors primarily to learn confidential information about products, processes, and corporate plans. Talent is a far more frequent reason for hiring away employees, of course.

Another spying trick is to set up recruiting centers at technical conventions, staffed by skilled interviewers who are just as interested in ferreting out confidential information as finding new employees.

As for the ethics involved, the students imply the best answer, in the absence of agreed-on standards of conduct, is for companies to instill in their employees strong loyalties and the need for security. That is the best way to prevent incidents like this one:

An automobile executive wanted to know what type of component a competitor was going to use on a new model. He simply telephoned the company's divisional office and complained that headquarters could not price the new model until he knew which component was going to be used. After the call was switched from office to office several times, someone finally gave him the correct answer.

It is difficult to assess the true extent of business espionage; but a significant 27% of the executives said that espionage activities have recently been discovered in their industry.

• **Detectives, Too**—In cases of critical information, some companies hire private detectives to do old-fashioned "cloak-and-dagger" undercover work. The best thing that can be said about this practice is that it is not always aimed at stealing information.

One use of such agencies is to investigate cases of suspected patent infringement. Often the only way to verify patent infringement, especially concerning processes, is to gain access to a competitor's plant. If infringement is verified, the company must then decide what to do next—request a licensing agreement, order the competitor to cease and desist, or file an infringement suit.

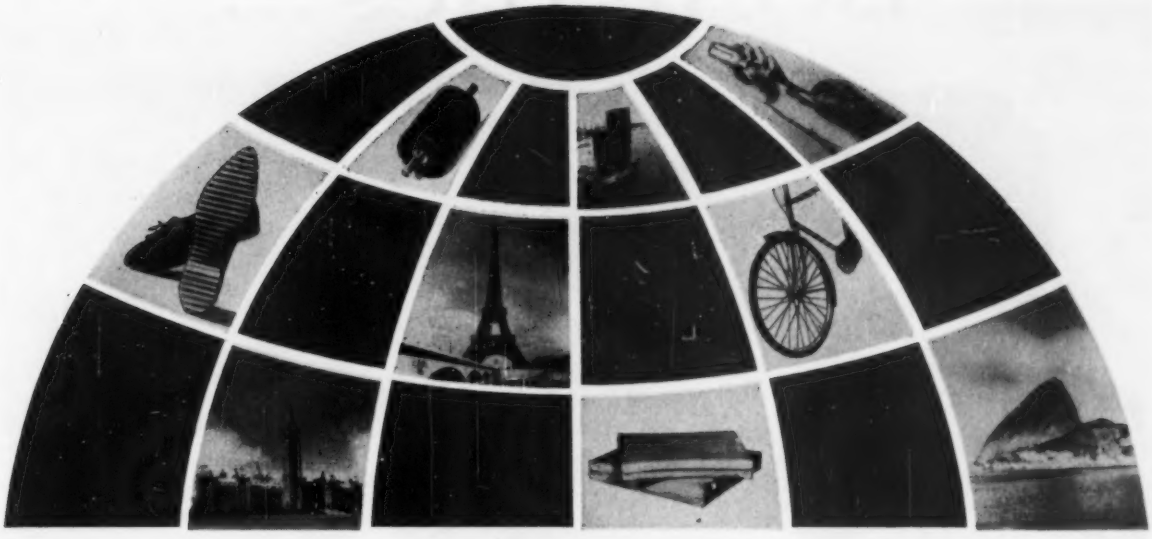
Some companies, it should be noted, believe that too much secrecy is bad: For one thing, it often leads to the accidental infringement of proprietary rights. Some companies actually invite their competitors in to see their new products; others resort to licensing agreements or the pooling of "know-how." ●

ADVERTISERS
in this issue
OVERSEAS EDITION

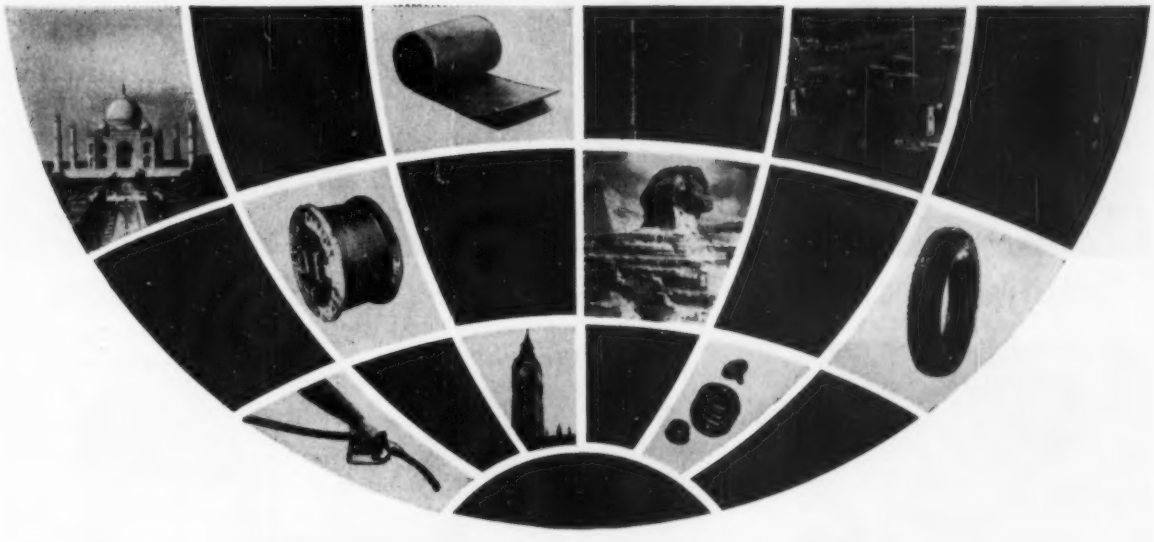
ALLIS-CHALMERS INTERNATIONAL 5, 41
Agency—Bert S. Gittins Adv.
Agency—Klau-Van Pietersom, Dunlap, Inc.
ANDERSON CO., V. D. 42
Agency—Will, Inc.
BETHLEHEM STEEL EXPORT CORP. 7
Agency—Gotham-Vladimir Adv., Inc.
BRITISH OVERSEAS AIRWAYS CORP. ... 56
Agency—Foote, Cone & Belding Ltd.
BURROUGHS CORP. 9
Agency—J. Walter Thompson Co.
BUTLER MFG. CO. 18
Agency—Aubrey, Finlay, Marley & Hodgson, Inc.
CIMEX—FRASER TUSON LTD. 32
Agency—City & General Adv. Ltd.
CLARK EQUIPMENT INT'L., C. A. 47
Agency—Marsteller, Rickard, Gebhardt & Reed, Inc.
CLEMSON BROS., INC. 29
Agency—Tyson & Co., Inc., O. S.
COMBUSTION ENGINEERING INC. 12
Agency—G. M. Basford, Co.
CONTROLS COMPANY OF AMERICA 29
Agency—Klau-Van Pietersom, Dunlap, Inc.
CORNING GLASS WORKS 19
Agency—National Export Adv. Service Inc.
CRANE CARRIER INDUSTRIES 43
Agency—Bert S. Gittens Adv.
CURTISS WRIGHT CORP. 36
Agency—Dobbins Woodward Co.
DAIMLER-BENZ A. G. 23
Agency—Heumann, Werbegesellschaft MBH
DELAWARE RIVER PORT AUTHORITY 28
Agency—Al Paul Lefton Co., Inc.
FORD MOTOR CO., LTD. 33
Agency—Rumble, Crother & Nicholas Ltd.
GENERAL MOTORS OVERSEAS OPERATIONS 57
Agency—Richard T. Brandt, Inc.
HITACHI LTD. 20
Agency—Dentsu Adv. Ltd.
INTERNATIONAL GENERAL ELECTRIC CO. 58
Agency—Grant Advertising, Inc.
KLM ROYAL DUTCH AIRLINES 30-31
Agency—Smit's Reclame-Advies en Service-bureau n. v.
KLOCKNER HUMBOLDT DEUTZ, A. G..... 51
Agency—Linder Presse Union GMBH
LINK-BELT COMPANY 53
Agency—Klau-Van Pietersom, Dunlap, Inc.
MONSANTO CHEMICAL CO. .....2nd Cover
Agency—Gotham Vladimir Adv., Inc.
OLIVER MACHINERY CO. 43
Agency—Ben Dean Adv. Agency
POLYMER CORPORATION LTD. 55
Agency—Stanfield, Johnson & Hill Ltd.
PYE TELECOMMUNICATIONS LTD. 24
Agency—Arks Publicity, Ltd.
ROLEX WATCH CO., LTD. 34
Agency—J. Walter Thompson Co., Ltd.
SEVEN-UP EXPORT CORP. .....4th Cover
Agency—Vickers & Benson, Ltd.
STOKES CORP., F. J. 10
Agency—Aitken-Kynett Co.
TOKYO SHIBAURA ELECTRIC CO., LTD... 37
Agency—Standard Agency
UNITED STATES STEEL EXPORT CO. .....3rd Cover
Agency—Batten, Barton, Durstine & Osborn, Inc.
VICTOR ANIMATOGRAPH CORP. 8
Agency—Charles W. Hoyt Co., Inc.
VIKING PUMP CO. 39
Agency—Wesley Day & Co., Inc.
WALLACE & TIERNAN, INC. 46
Agency—Branstater Associates, Inc.
WORTHINGTON CORP. 14
Agency—Gotham-Vladimir Adv., Inc.
YALE & TOWNE MFG. CO. 22
Agency—Erwin Wasey, Ruthrauff & Ryan, Inc.
YALE & TOWNE MFG. CO., TROJAN DIV... 44
Agency—Dobbins Woodward Co.
YODER COMPANY 11
Agency—G. M. Basford Co.

SALES REPRESENTATIVES

New York 36....K. P. Bliss, D. L. Trimble, 500 5th Avenue
Boston 16.....D. C. Coddington, 350 Park Square Bldg.
Chicago 11.....J. P. MacLeod, S. Kimes, 520 N. Michigan Avenue
Cleveland 13..W. S. Bliss, 1164 Illuminating Building
Detroit 26.....Lee Cashin, 856 Penobscot Bldg.
Philadelphia 3..D. L. Trimble, 6 Penn Center Plaza
Pittsburgh 22.....W. S. Bliss, 919 Oliver Bldg.
St. Louis 8.....S. Kimes, 3615 Olive Street
Atlanta 3.....D. C. Billian, 1301 Rhodes-Haverty Bldg.
Los Angeles 17.....R. Yocom, 1125 West 6th Street
San Francisco 4.....John Otterson, 68 Post Street
Dallas 1.....F. E. "Gene" Holland, 1712 Commerce Street
Denver 2.....J. W. Patten, 1740 Broadway
Germany.....M. R. Zeynel, McGraw-Hill Publishing Co., Inc., 85 Westendstrasse, Frankfurt am Main
United Kingdom....E. E. Schirmer, Norman Strick, McGraw-Hill House, 95 Farringdon St., London, E. C. 4



Synthetic Rubbers for World Industry



POLYSAR*

The versatile Polysar range of synthetic rubbers is helping industry improve products and manufacturing processes all over the world. One of the factors contributing to its success is the technical service behind it. Wherever you are in the world there is a Polymer representative near you who is fully qualified to advise you at every stage.

Find out what Polysar can do for you by writing to the Marketing Division, Polymer Corporation, Sarnia, Canada.

*Trade Mark Reg'd

POLYSAR

Synthetic Rubbers

Products of

POLYMER CORPORATION LIMITED

SARNIA • CANADA

BOAC flies...

Fathers respectfully

Model girls beautifully

Bachelors gaily

Children understandingly

Perfectionists perfectly

Daughters delightfully

Tycoons punctiliously

Grandmothers helpfully

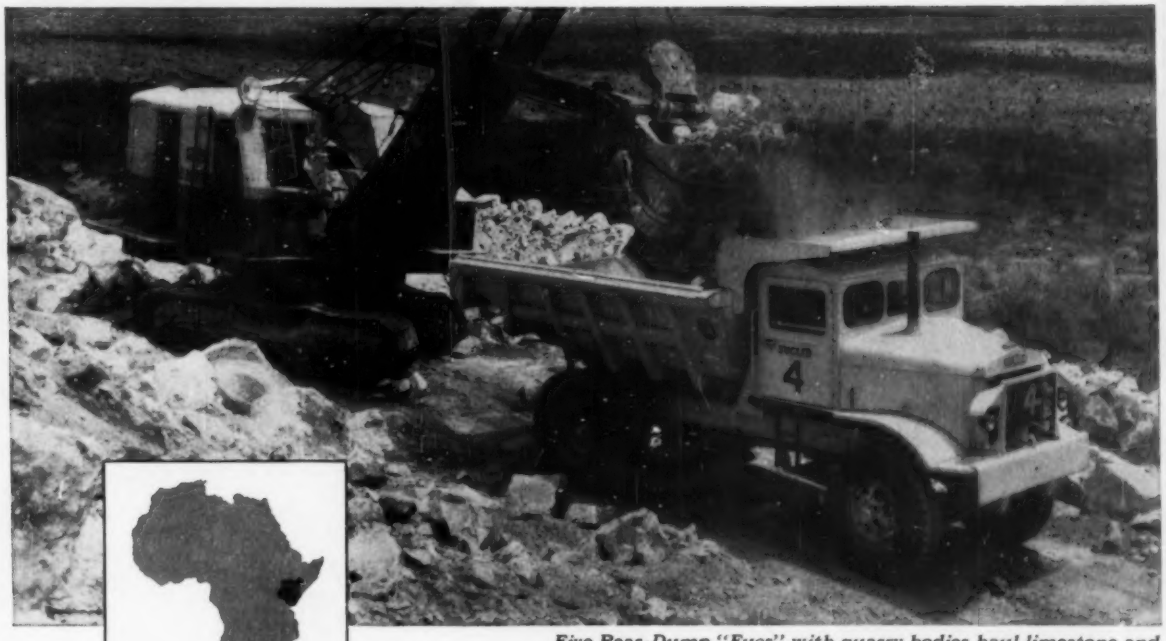
Grandfathers gently
(or any other cargo anywhere)

B·O·A·C takes good care of you

Consult your BOAC Appointed Travel Agent or any BOAC office

BRITISH OVERSEAS AIRWAYS CORPORATION

"EUCS" IN AFRICA...



Five Rear-Dump "Eucs" with quarry bodies haul limestone and over-burden at this operation in a remote area of East Africa.

Haul Limestone for Cement Plant

The East African Portland Cement Company, Ltd. of Nairobi, Kenya Colony uses five Euclid 15 ton Rear-Dumps to haul limestone at their Kabeni Hills quarry operation. This quarry is located in a remote area 80 miles from Nairobi and 10 miles from the nearest village. Stone is loaded into the "Eucs" by 1½ yard shovels and hauled down 8% grades to the crushing plant in the valley below, a distance of 1½ miles. Here the stone is coarse crushed and shipped by rail to Nairobi for final processing into cement for the East African market.

These British built Euclid Rear-Dumps are powered by Rolls Royce diesel engines of 210 h.p. They operate eight hours a day, six days a week. The five "Eucs" keep the crusher supplied with a steady flow of material and have ample productive capacity to meet additional plant requirements.

The dependability of Euclid equipment is especially important on projects in remote areas such as this where steady production must be maintained. Rear-Dumps are available with capacities from 10 to 55 tons . . . diesel engines of 128 to 670 total horsepower . . . 5 and 10 speed transmissions and Torqmatic Drives. If heavy earthmoving equipment is used in your operations your Euclid dealer can show you why "Eucs" are your best investment.

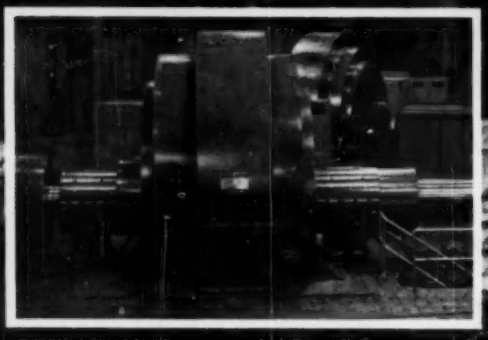
Dumping 15 tons of stone into the crusher at the plant which is located 1½ miles from the quarry face.

GENERAL MOTORS OVERSEAS OPERATIONS • 1775 Broadway, New York 19, N. Y., U. S. A.

EUCLID (GREAT BRITAIN) LIMITED • Newhouse, Lanarkshire, Scotland

EUCLID PRODUCTS

A REPORT ON POWER FOR PROGRESS



Aerial view of Ambuklao Power Station, largest hydroelectric installation in the Philippines. Inset picture shows underground power station housing 3 General Electric generators.

How a man-made lake and...

General Electric Helped Ambuklao Provide Low-Cost Power For The Philippines

Low-cost electric power is vital to the industrial and economic progress of all nations. In the Philippines, one big step forward has been the completion of the Ambuklao power station in Central Luzon. Here National Power Corporation's highly skilled team of engineers have harnessed the mighty Agno River with its history of flood and devastation, and made it into a peaceful lake that supplies the water for efficient hydroelectric power.

The unique underground power station at Ambuklao houses three General Electric hydro-generators which are a part of the system that provides a combined power output of 75,000 kilowatts. On the same subterranean level with the generator room is the control room where G-E switchboard panels are installed. Other G-E contributions to the mammoth Ambuklao development include power transformers and carrier-current equipment. All of these products were designed, engineered, produced and tested to meet the highest standards of operating efficiency and reliability.

G-E with vast experience in the electric utility field has installed equipment, under the most adverse circumstances, that benefits government, industry and the people in countries all over the world. Contact your nearest G-E representative for full details about General Electric Power for Progress, or write: *International General Electric Co., Dept. 59-1, 150 East 42nd Street, New York 17, N.Y., U.S.A.*

GENERAL ELECTRIC

—U.S.A.—

INTERNATIONAL
MANAGEMENT'S

Recommended Reading

Economics—Inside the Firm

Economics of the Business Firm, by J. D. Coppock, was written from the viewpoint of a company's administrators, rather than that of an economist. It explains the parts of economic analysis that bear directly on management decision-making, and covers such subjects as treatment of fixed, variable and marginal costs, determining prices, and estimating demands. 366 pages, $6.95. McGraw-Hill Book Co. Inc., 330 W. 42nd St., New York 36, N. Y., U.S.A.)

Guides to Textile Fibers

Handbook of Textile Fibres, by J. Gordon Cook, is a comprehensive study of all fibers—natural and man-made. It lists origins, characteristics, qualities, physical properties, and processing techniques. 15s. or $2.10. (Merrow Publishing Co., 276 Hempstead Road, Watford, Herts, England) . . . Man-Made Fibers & Yarns—1959 includes the latest, most complete man-made fiber chart published by Textile World, plus technical data on individual fibers and yarns. $1.00. (Intl. Management Digest, 330 W. 42nd St., New York 36, N. Y., U.S.A.)

All About Automobiles

The World's Automobiles—1880-1958 by G. R. Doyle, reviews every commercially-manufactured automobile. Though the book is *not* illustrated, it provides complete information on nationality, manufacturers, names and addresses, years of production, and stories about historic cars. 15s. or $2.10. (Temple Press Ltd., Bowling Green Lane, London E.C. 1, England.)

For the Foreign Investor

Legal Aspects of Foreign Investment, edited by W. G. Friedmann and R. C. Pugh, is a survey of the legal conditions governing foreign investment in 40 nations, including a study of the principles and methods of protection afforded the foreign investor. $20.00. (Little, Brown & Co., 34 Beacon St., Boston 6, Mass., U.S.A.)

For the World Trader

Directory of Foreign Advertising Agencies and Marketing Research Organizations lists organizations and their addresses in nearly every nation. 135 pages, free as long as supply lasts. (Intl. Management Digest) . . . Directory of New York Importers provides an alphabetical and classified listing of importers—including addresses, bank references, and products imported. 237 pages, $5.00. (Commerce & Industry Assn. of New York Inc., 99 Church St., New York 7, N. Y., U.S.A.)

Bulletins from Industry

Booklet 70-11265 will tell you all about Alcoa's ALPLY—a new insulating building panel. (Aluminum Co. of America, 779 Alcoa Building, Pittsburgh 19, Pa., U.S.A.) . . . Two new Remington Rand booklets: A 20-page guide to steel chairs for the modern office; and an illustrated folder (LBV725 Rev. 3) that tells how divider-type shelf filing can save time, space and money. (Remington Rand Intl., 315 Fourth Avenue, New York 10, N. Y., U.S.A.)

INTERNATIONAL
MANAGEMENT'S

Personal Business

The Play's the Thing: Highlights of the New Season

In New York, heavy advance sales of the popular musicals have made it difficult to just "drop in"—especially such sure favorites as Rogers and Hammerstein offerings. Their latest: **"The Sound and Music,"** starring Mary Martin. Two other new musicals are **"Saratoga"** and **"Take Me Along,"** a musical version of O'Neill's "Ah, Wilderness!"

In drama, one of your best choices is **"The Miracle Worker"** by William Gibson, a play about the woman who taught the deaf, dumb, and blind Helen Keller. A provocative choice might be **"Raisin in the Sun."** There is also a new play by William Inge, **"A Loss of Roses,"** and Melvyn Douglas's new vehicle is **"The Gang's All Here."**

The current Broadway season is a good one for the British. Shaw's **"Heartbreak House"** has a cast headed by Maurice Evans; Eric Portman and Wendy Hiller star in **"The Flowering Cherry,"** on from London. Naturally, there is an Anouilh on hand: **"Time's Fool,"** starring Rex Harrison.

In London, plenty of new plays—and a new theatre. The **Mermaid Theatre,** conceived by actor-impresario Bernard Miles, was built last spring in the heart of the City. Its program begins with a musical, **"Lock Up Your Daughters,"** based on an 18th century comedy.

Among the new plays are 21-year-old Shelagh Delaney's **"A Taste of Honey"; "The Complacent Lover,"** a comedy with Ralph Richardson, and Noel Coward's **"Look After Lulu,"** with Vivien Leigh and Anthony Quayle in the cast.

Look to the **Royal Court Theatre** for arresting plays by young playwrights. Besides presenting well-known works by the U.S.A.'s Arthur Miller, France's Jean Giraudoux and others, the Court has "launched" plays by authors like Britain's own John Osborne and Nigel Dennis.

Shakespeare (and other classics) you will find at the Old Vic repertory theatre. And don't miss Olivier's **"Coriolanus"** at Stratford-upon-Avon, which this year celebrates its hundredth season. The troupe includes Edith Evans, Paul Robeson, Charles Laughton, Sam Wanamaker.

In Paris, the spotlight centers on three directors:

Claude de Boisanger has the Comedie Francaise (now housed only in the Salle Richelieu). Expect mostly high tragedy here (Racine's **"Phedre"** is playing this month), fewer classical comedies. Also at the Comedie: two new works by Jean Anouilh, who seems to dominate the Paris stage just now—**"Madame D . . ."** and **"La Foire d'Empoigne."**

At the Theatre de France (formerly the Salle Luxembourg) is **Jean-Louis Barrault's** troupe. Here you can see Anouilh's **"La Petite Moliere,"** Claudel's **"Tete d'Or,"** and **"Le Rhinoceros"** by Ionesco.

For Moliere, look to **Jean Vilar's** troupe at the Palais de Chaillot.

Other notable theatrical events in Paris: More Anouilh at the Theatre Maupassant: **"Thomas Beckett, ou L'Honneur de Dieu"**; J. P. Sartre's **"Les Sequestres d'Altona"** at the Theatre de la Renaissance, and a musical comedy by Marcel Ayme—**"Patron"**—at the Sarah Bernhardt.

There's added beauty and durability in appliances made with USS VITRENAMEL Steel Sheets

Home appliances, architectural panels, signs and similar products come alive with new beauty and color in porcelain finishes, when fabricated with USS Vitrenamel Steel Sheets.

This unique product offers a specially processed base that's ideal for enameling. The result is a surface as easy to clean as fine china . . . with the strength only steel can give. Enameled sheets are also durable, highly resistant to food acids, fading and rusting.

USS Vitrenamel Steel Sheets are readily available in a wide range of thicknesses, cut lengths and coils. These sheets offer maximum ductility for severe forming and resistance to distortion when subjected to high enameling temperatures up to 898° C. —features every fabricator looks for in steel sheets for enameling.

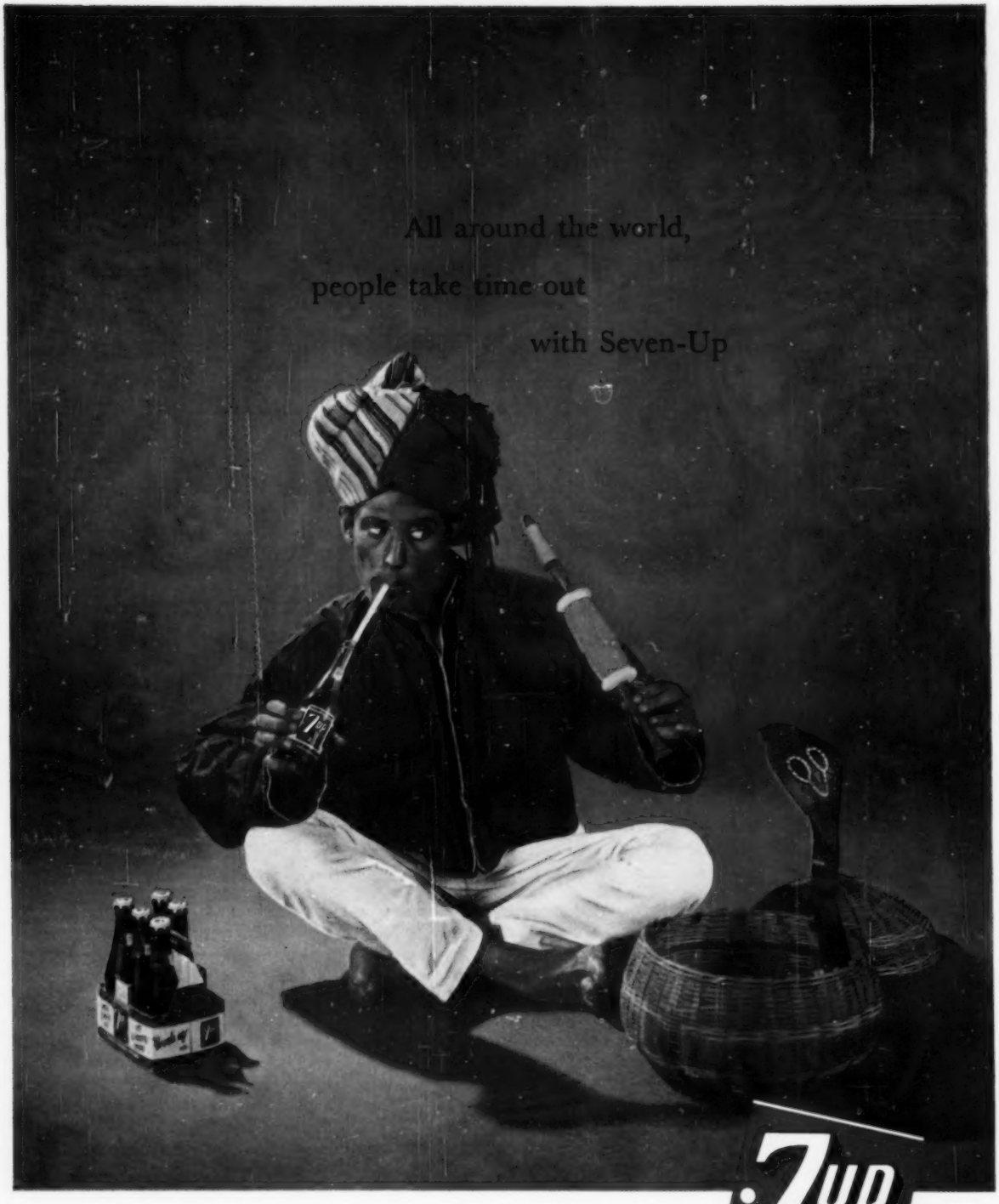
USS Cold Rolled Steel Sheets are also valuable where enamel is sprayed and baked, as a supplement to USS Vitrenamel. Cold Rolled Sheets are economical for fabricating appliance exteriors, fittings and shelving, and are available in a wide range of sizes.

For more information about USS products, write to: United States Steel Export Company, 100 Church Street, New York 8, N. Y., U. S. A.

USS and VITRENAMEL are registered trademarks.

United States Steel Export Company

100 Church Street, New York 8, N. Y., U. S. A.



When taking time out, people everywhere enjoy the delicate, lemon-lime taste—the quick, refreshing lift of Seven-Up. The growing demand for this 'fresh up' drink makes a Seven-Up franchise increasingly valuable to local business men everywhere. For information, write to:

SEVEN-UP EXPORT CORPORATION, 29 BROADWAY, NEW YORK 6, NEW YORK.